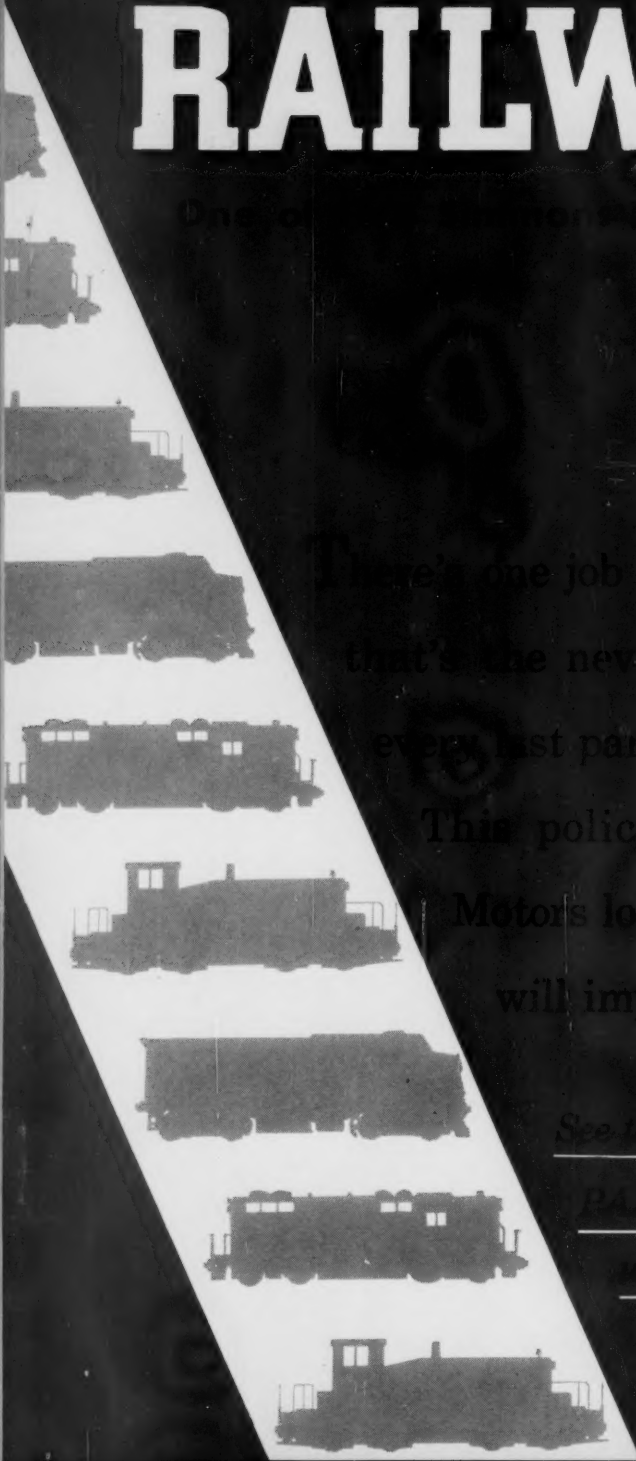


DECEMBER 1952

Vol. 65, No. 32

RAILWAY AGE

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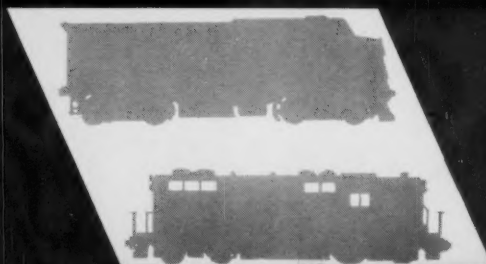
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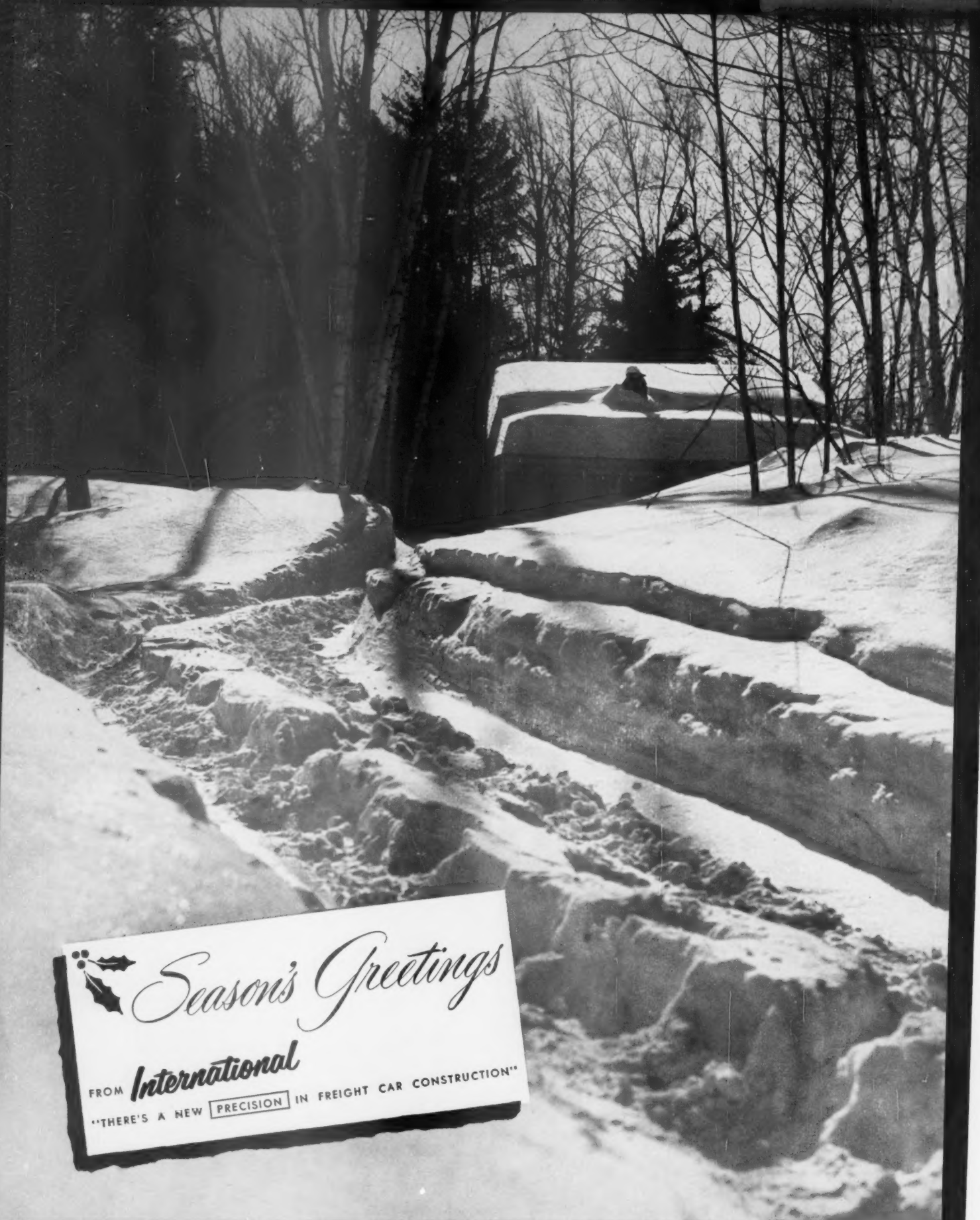
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FROM *International*

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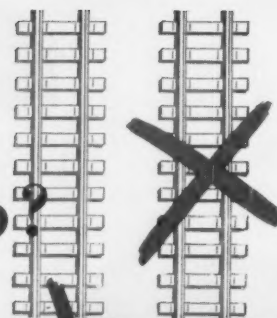
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CONTENTS and Week at a Glance

Wage-increase "package" of 16½ cents an hour for non-operating employees has been recommended by an emergency board. Yearly cost to railroads would approximate \$290 million. . . . 7

The present per diem rate of \$2.40 and other rates of recent years have not been in excess of reasonable compensation to car owners, the ICC finds. . . . 8

Orders for about 27,000 freight cars are reported in this week's market column, which includes an AAR officer's prediction that "well over" \$1 billion will be spent by railroads next year for additions and improvements to plant and equipment. . . . 9

FORUM: "Jitneys" and the certificated air lines—the current counterpart of the jitney being the "non-sked" plane—afford an observer a beautiful example of what happens when "privileges" aren't matched by obligations. The air common carrier needs just as badly as do the railroads a better public understanding of what the controversy over regulation is all about . . . 27

Aluminum on Union Pacific passenger cars has been subjected to 22 years of testing in service. Results? Specifications for new UP cars call for an average of 18,000 lb of aluminum per car. . . . 28

We rode the ACL No. 109 to find out how that railroad gets its business-getting "hot shot" over the road so fast—681 miles in less than 20 hours. . . . 32

Telecasting from a moving train—a D&RGW run through the Rockies—gave TV audiences recently an engineman's view of the railroad. . . . 35

How much opinions research? Evidence is piling up to show real savings from use of this railroad management tool. . . . 37

Safest distance between two points

At the height of the Christmas rush, go down to the nearest railroad station. Watch the throngs of old folks, parents, children, whole families as they board or leave the trains that take them or bring them home for the holiday. Everyone is happy and confident—they are traveling by train.

By making America's railroads so safe and so comfortable, you—in the railroad industry—have inspired the trust of an entire nation.

Merry Christmas

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AIR BRAKE DIVISION



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Current Statistics

Operating revenues, ten months	
1955	\$8,374,221,196
1954	7,780,406,868
Operating expenses, ten months	
1955	\$6,294,360,120
1954	6,158,779,123
Taxes ten months	
1955	\$ 923,043,139
1954	740,223,069
Net railway operating income, ten months	
1955	\$ 947,241,229
1954	671,849,861
Net income, estimated, ten months	
1955	\$ 753,000,000
1954	484,000,000
Average price railroad stocks	
December 13, 1955	98.30
December 14, 1954	81.23
Carloadings revenue freight	
Forty-eight weeks, 1955	35,194,709
Forty-eight weeks, 1954	31,528,962
Average daily freight car surplus	
Wk. ended Dec. 10, 1955	5,728
Wk. ended Dec. 11, 1954	36,003
Average daily freight car shortage	
Wk. ended Dec. 10, 1955	2,768
Wk. ended Dec. 11, 1954	292
Freight cars on order	
November 1, 1955	61,954
November 1, 1954	12,853
Freight cars delivered	
Ten months, 1955	29,710
Ten months, 1954	32,083
Average number of railroad employees	
Mid-October 1955	1,087,247
Mid-October 1954	1,005,145

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX, THE ENGINEERING INDEX SERVICE AND THE PUBLIC AFFAIRS INFORMATION SERVICE. RAILWAY AGE, ESTABLISHED IN 1856, INCORPORATES THE RAILWAY REVIEW, THE RAILWAY GAZETTE, AND THE RAILWAY AGE GAZETTE. NAME REGISTERED IN U. S. PATENT OFFICE AND TRADE MARK OFFICE IN CANADA.

Departments

Figures of the Week	40
Financial	40
Forum	27
Freight Operating Statistics	50
Management Speaks	10
Operations	12
Organizations	25
People in the News	9
Questions and Answers	16
Railway Market	9
Railway Officers	56
Steel Supply	13
Supply Trade	46
Traffic	46

Week at a Glance CONTINUED

Engineers use cables and cunning to bridge a swift river in the northern Quebec wilds, where the CNR is reaching out to tap new mines and timber sources.

... 38

BRIEFS

The New York Central is putting the final touches on a thorough-going staff reorganization. This road has long maintained a "departmental" type of organization differing radically from that of every other large road in the country, with the possible exception of the North Western. Among the new plan's features: decentralization of certain functions now vested at system headquarters; division of the system into four regions; creation of full line-and-staff organizations for their respective general managers; and extension of authority of the managers and their division superintendents to include all of the functions of the operating departments.

Negotiations have deadlocked in the wage "dispute" between the Conductors' union and 105 railroads. National Mediation Board Chairman Edwards arrived in Chicago recently to try to adjust the differences. The brotherhood demands \$3 a day more for passenger conductors and \$2 for freight conductors.

Experienced railroad officers may apply for the job of running the Victorian State Railways, Australia, comprising 5,000 route miles and 30,000 employees. Present salary is 6,000 pounds (about \$13,500). Victoria is used to American-trained managers; though Australian born, H. W. Clapp had been a railroader in the U.S. for some years when the Victorian government tapped him for a similar position in 1920.

A National Transportation Week is to be sponsored by Associated Traffic Clubs of America. Scheduled for October 22-27, 1956, this tribute to carriers, their employees, and the industrial traffic managers who buy their services, is an idea proposed by T. C. Burwell, chairman of ATC, and vice-president of the A. E. Staley Manufacturing Company.

Merry Christmas

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\$290 Million Wage Hike Proposed

Emergency board recommends, for "non-ops," a 16½-cents-per-hour "package," which would cost \$104 million per year more than the railroad offer of 10½ cents

A wage-increase "package" of 16½ cents per hour, which would cost railroads about \$290 million a year, has been recommended for non-operating employees by an emergency board.

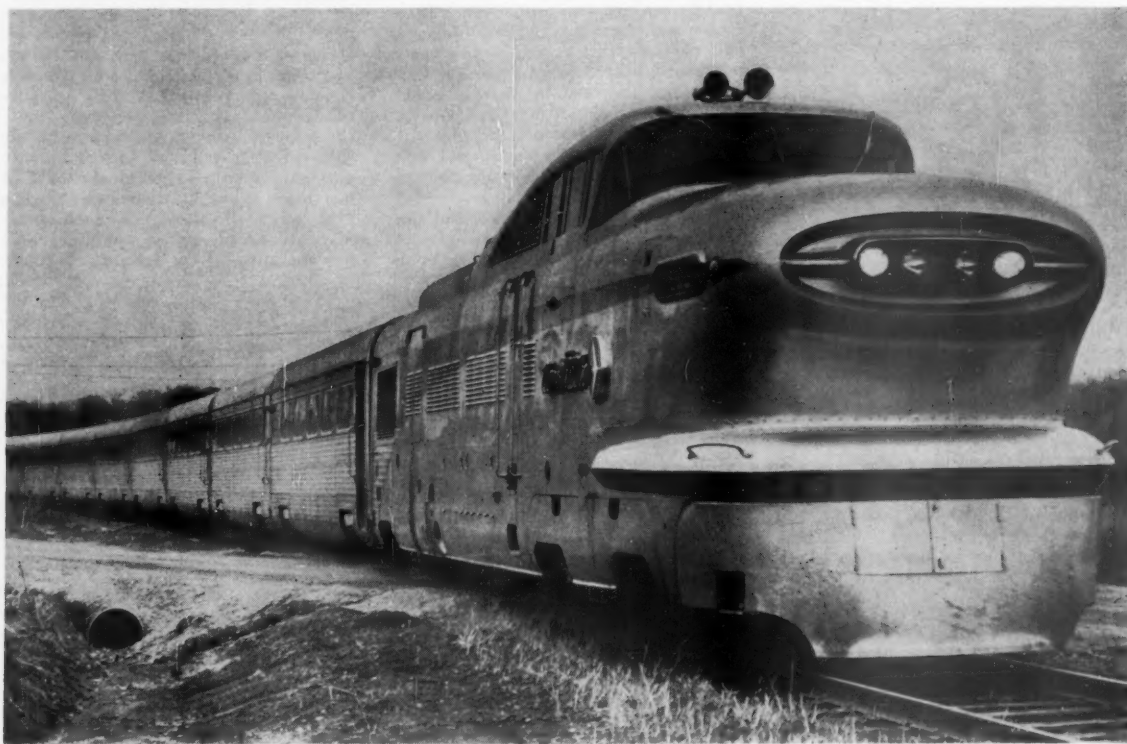
That would be \$104 million per year more than the \$186 million which would have been involved if the car-

riers' offer to settle the case on the basis of a 10½-cents "package" had been accepted. The demand of unions representing "non-ops" was for a 27-cents "package."

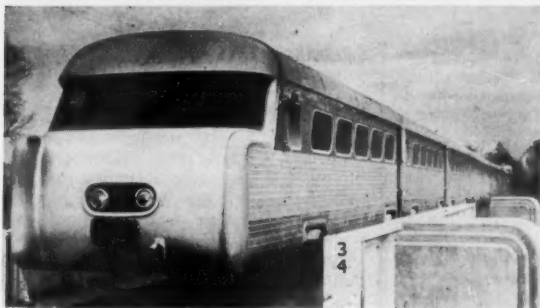
The recommended "package" would include an increase of 14½ cents per hour in basic wage rates,

effective December 1, and assumption by the carriers, on March 1, 1956, of the full cost of the "non-ops" health and welfare plan. The latter would be the equivalent of two cents per hour. The plan is now supported by equal contributions of carriers and employees.

The recommendations were based mainly on findings that the "non-ops" were entitled to the 16½ cents "package" as a "catch-up" adjustment to bring them into line with raises obtained by operating employees in re-

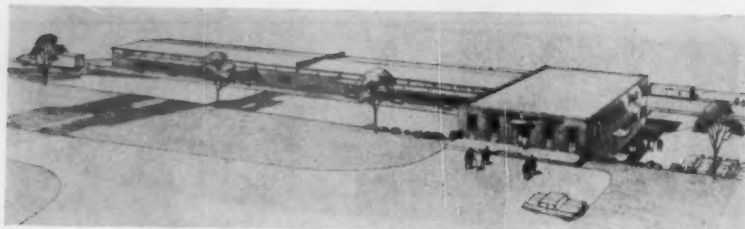


Photographs courtesy Peoria "Journal Star"



GM's "AEROTRAIN" BEING TESTED ON THE ROCK ISLAND

Road tests of General Motors' new "Aerotrain" have been under way for the past two weeks. These pictures were taken as the train passed through Peoria on December 6. The shakedown runs, giving GM engineers a chance to check the train in action, have been conducted over a triangular section of the Rock Island between Silvis, Ill., Peoria and Bureau (*Railway Age*, December 12, page 9).



PEORIA & PEKIN UNION'S new general office and freight house at Creve Coeur, Ill., will cost \$710,000. The new structure (shown in architect's sketch above), will replace present

facilities at the old Peoria, Ill., union station and freight house, and also the office building on West Washington street, Peoria. The new facility will be completed next year.

cent years. A special situation was found to exist as to dining car employees represented by the Hotel and Restaurant Employees and Bartenders International Union, who got a 1953 increase which did not go to "non-ops" generally.

The board found that these employees need only 13½ cents per hour to "catch-up," and recommended that increase for them, effective December 1. It made plain, however, that it intended four cents of the 13½ should be converted to health-and-welfare-plan payments if current negotiations result in establishment of a carrier-financed plan for HREBIU members.

Ability to Pay—Railroad evidence on their ability to pay convinced the board the recommended increases should not be retroactive to any date earlier than December 1. "On the basis of the record," the report said, "there is a question of the carriers' ability to pay the complete wage increase effective retroactively to the September 1, 1955, date requested by the organizations or the October 1, 1955, date on which the 1955 wage increases of a large number of operating employees have been made effective. The board's determination to recommend no retroactivity . . . prior to December 1, 1955, is based on its conclusion that the carriers do not possess the ability to pay such a wage increase retroactively to any earlier date."

The railroad offer of a 10½-cents "package," like the recommended settlement, contemplated that two cents would cover assumption by the carriers of the full cost of supporting the health and welfare plan. This offer was rejected by the "non-op" unions, and it expired October 31. The emergency board was created by President Eisenhower November 7.

Members of the board were: Chairman Dudley E. Whiting of Detroit; G. Allan Dash, Jr., of Philadelphia; and John Day Larkin of Chicago. The first two are professional arbitrators. Mr. Larkin is dean of the School of Industrial Relations, Illinois Institute of Technology. The board made its report to the President December 12.

The "catch-up" raise recommended was based on the board's determination of the difference between

what the "non-ops" have got in the way of wage increases and "fringe benefits" since October 1948, and raises awarded to operating employees. A table in the report indicates that the "ops" in that period got a total of 55 cents per hour, including four cents in lieu of health and welfare benefits, while "non-ops" got 38½ cents, including the carriers' present half payment (amounting to two cents per hour) toward the health and welfare plan. Thus the 16½-cents "package" would bring "non-ops" up to 55 cents, and that would include four cents applicable to the health and welfare plan if the carriers took over its full cost.

Stated otherwise, the proposal includes the 1955 pattern of 10½ cents per hour awarded to operating em-

ployees, less two cents which the "non-ops" got this year in the form of carrier payments on their health and welfare plan. This 1955 net of 8½ cents was then raised to the recommended 16½ cents by the addition of "catch-up" factors of five cents and three cents. The 5-cents factor is based on the fact that the "ops" got a 1953 raise in that amount which did not go to "non-ops" because they were then engaged in a "fringe benefits" case; and a 3-cent factor based on the difference between the 10 cents awarded to the "ops" and the seven cents awarded to the "non-ops" in 1942, when the latter also got their 40-hour week with no loss in take-home pay.

Thus did the board decide to propose a settlement on the basis of comparisons within the industry, although its report had much to say about evidence making comparisons of "non-op" wages with wages of employees in other industries. As to its adoption of the "catch-up" approach the board had this to say:

"While the timing of these wage increases has varied, and special adjustments have sometimes been granted concurrently to specific crafts for particular reasons, the eventual result thus far (since wage movements in the railroad industry have become national in scope beginning in 1937) has been a like total amount of general wage increases for each craft and groups of crafts, operating and non-operating alike."

ICC Upholds Per Diem Rate

Finds that present rate of \$2.40 and other rates of recent years have not been in excess of reasonable compensation

The Interstate Commerce Commission has found that the \$2.40 per diem rate for rental of freight cars is not in excess of reasonable compensation to car owners. It has also made the same finding with respect to per diem charges of \$1.75 and \$2 for the periods in which they were effective.

The commission thus rejected the recommendation of Examiner Howard Hosmer's proposed report which advised the commission to issue a declaratory order stipulating that the present charge would be on a reasonable basis if it were cut from \$2.40 per day to \$2.10. As to the previous rates of \$1.75 and \$2, the examiner would have declared them reasonable for the periods in which they were effective (*Railway Age*, December 13, 1954, page 7).

The commission's decision was dated October 17, but not made public until December 9. The case out of which it came was the proceeding (No. 31358) instituted in September 1953 after a group of railroads had filed a complaint against roads refus-

ing to pay the \$2.40 charge. The complainants are 19 of the larger Class I railroads, and 15 other Class I roads intervened to support them. The complaint asked the commission to find that the rates of \$1.75, \$2 and \$2.40 were "just, reasonable and otherwise lawful" during the periods of their effectiveness.

Defendants and their supporters include the New York, Susquehanna & Western; Boston & Maine; New Haven; Rutland; Long Island; and a large group of short lines. In refusing to pay the \$2.40 rate, some of the defendants offered to pay on the basis of a graduated scale depending upon the age of the car.

Cost Evidence—Much of the commission's report was devoted to a discussion of the cost evidence which supported the formula used by the railroads in fixing the per diem rate. The commission adjusted the cost figures and came up with a table of estimated average costs of car ownership. The table indicates that the average cost in 1952 and 1953 was

\$2.44, four cents higher than the \$2.40 rate, which became effective August 1, 1953. Likewise, the other indicated costs (\$1.97 and \$2.32) were in excess of per diem rates in effect during the same years.

In arriving at its cost figures, the commission included a car-depreciation factor on the basis of the undepreciated reproduction value, and it allowed 6% for interest on the investment in cars. In the former connection, the report said:

"We would be less than realistic if we failed to take into consideration that carriers who now buy cars must pay prices predicated on present values, and those who rent cars owned by others should expect to pay rentals based on such values. Failure to do so would cast an undue burden upon the car owners and favor unduly those who pay rentals."

The 6% interest allowed by the commission was defended in the report with this comment: "It seems clear that the car-owning carrier is entitled to a larger return than one based solely on costs of money measured by current interest rates, for in acquiring cars it acts somewhat as an entrepreneur. It must assume the burden of planning and financing the new equipment in the light of an uncertain demand for cars in general or those of a particular type due to unpredictable factors affecting the outlook for rail transportation. In other words, in determining a fair per diem charge some consideration should be given to what are termed incentive and risk, and an appropriate place for such an element is in the capital charge."

Faricy Statement—The commission's decision was hailed by William T. Faricy, president of the Association of American Railroads, as "encouraging in that it will strengthen the movement to increase the supply of freight cars." Mr. Faricy added:

"The present rate of \$2.40 a day, sustained by the commission as being reasonable, was recommended by the Operating-Transportation division of the AAR in 1953 upon the basis of 1952 costs, and was approved by the great majority of the freight-car ownership of the railroads. It is gratifying to have the stamp of official approval placed upon this action."

People in the News

Yellott Resigns Directorship Of Turbine Loco Project

J. I. Yellott has resigned as director of research on the project for developing a coal-fired gas turbine locomotive. The project is that of the Locomotive Development Committee of Bituminous Coal Research, Inc.

Peter R. Broadley, now assistant director of research, will become Mr. Yellott's successor in the directorship;

RAILWAY

MARKET

Outlook

THIS WEEK

Big Year Ahead!

► **RRs to Spend "Well Over" \$1 Billion in 1956.**—Caleb R. Megee, vice-chairman, Car Service Division, AAR, predicts railroads will lay out "well over" one billion dollars for additions and improvements to plants and equipment next year; he estimates 1955's capital improvement program—including payments for freight cars, locomotives, terminal facilities and electronic devices—will cost about \$900 million by year's end.

Lightweight Trains

► **"Aerotrain" to Get 90-Day Test on PRR.**—Following exhibitions on its own line, and a two-week showing of the train on the New Haven, the Pennsylvania plans to operate General Motors' "Aerotrain" for 90 days in daily round-trip revenue service, New York to Pittsburgh, each leg to be made in about seven hours. After that, it's up to the PRR if it wants to buy the experimental equipment.

► **Rock Island.**—The "Jet Rocket's" lightweight diesel locomotive and Talgo-type cars will be ready for tests early next month.

New Equipment

FREIGHT CARS

► **Boston & Maine.**—Ordered 1,000 roller-bearing-equipped cars, Pullman-Standard; includes 539 40-ft box cars, 300 70-ton hopper cars, 100 53-ft flat cars, 26 70-ton covered hopper cars, 35 insulated box cars for handling milk.

► **Central of Georgia.**—Ordered 25 70-ton covered hopper cars, Pullman-Standard; approximate cost \$205,000; delivery August 1956 (last week's column erroneously said the cars had been authorized for construction in the road's own shops).

► **Chicago Great Western.**—Ordered 400 cars; estimated cost \$3,200,000; ACF Industries will build 100 70-ton hopper cars; General American, 100 50-ton box cars; Pullman-Standard, 200 50-ton box cars.

► **Detroit & Toledo Shore Line.**—Plans to order 100 50-ton, 50-ft box cars before end of year.

► **Detroit, Toledo & Ironton.**—Ordered 175 50-ton boxcars, Pullman-Standard; approximate cost \$1,500,000.

► **Duluth, South Shore & Atlantic.**—Ordered six airslide cars, General American; delivery third quarter next year.

► **Jersey Central Lines.**—Ordered 100 70-ton covered hopper cars, Pullman-Standard; estimated unit cost \$7,885; delivery expected June 1956.

► **Kansas City Southern.**—Will order 50 70-ton covered hopper cars before end of year.

(Continued on next page)

RAILWAYS IN THE MARKET—THIS WEEK

CONTINUED

► **Merchants Despatch Transportation-Northern Refrigerator Line.**—Jointly ordered 1,000 40-ton standard refrigerator cars; MDT also ordered 50 mechanically activated refrigerator cars; all to be built by Pacific Car & Foundry; deliveries start June 1956; approximate cost \$12,000,000.

► **Minneapolis & St. Louis.**—Ordered 50 70-ton covered hopper cars, Pullman-Standard; cost \$375,000.

► **New York Central.**—Ordered 14,750 freight cars (plans announced *Railway Age* November 7, page 13); builders: Pullman-Standard, 1,000 70-ton hopper cars, 500 70-ton covered hopper cars; ACF Industries, 1,500 70-ton hopper cars; Greenville Steel Car, 1,000 70-ton hopper cars; General American, 500 70-ton hopper cars; Despatch Shops (NYC subsidiary), 5,250 70-ton hoppers, 1,500 40½-ft box cars, 3,500 50½-ft box cars (of the latter 1,000 will have Evans auto-loading equipment, and 500 Evans DF loading equipment).

► **Pittsburgh & Lake Erie.**—Ordered 2,000 70-ton hopper cars, Bethlehem Steel; will order 1,000 70-ton gondola cars; total cost of 3,000 cars will be \$23,600,000; deliveries expected to start third quarter 1956.

► **Pittsburgh & West Virginia.**—Ordered 50 70-ton covered hopper cars and 100 50-ton box cars, Pullman-Standard; 100 70-ton gondola cars, Bethlehem Steel; total cost about \$2,200,000; delivery of hopper cars, May or June 1956; box cars, first quarter 1957; gondola cars, fourth quarter 1956.

► **Reading.**—Ordered 1,000 55-ton hopper cars and 500 70-ton hopper cars, Bethlehem Steel; 400 70-ton 42½-ft gondola cars included in recent inquiry (*Railway Age*, November 28, page 9), will be ordered shortly.

► **Southern.**—Ordered 2,800 cars costing estimated \$27½ million; Pullman-Standard will build 2,000 50-ton 50½-ft box cars, 500 70-ton hopper bottom coal cars, 100 70-ton side dump hopper cars; Greenville Steel Car, 100 70-ton 65½-ft gondola cars; Thrall Car, 100 70-ton 53½-ft flat cars; deliveries expected to begin mid-1956; box cars will have "soft-ride" trucks, ventilators, nailable steel floors and interiors lined with steel.

► **Union Pacific.**—Ordered 1,100 additional freight cars; cost \$10,595,000; UP shops will build 800 50-ton box cars, 200 50-ton insulated cars; General American, 100 70-ton hopper cars.

► **Western Maryland.**—Ordered 25 50-ton flat cars, Greenville Steel Car; estimated cost \$198,000; delivery second quarter 1956.

► **Western Pacific.**—Ordered 385 of recently authorized 410 cars (*Railway Age*, November 14, page 13); Pullman-Standard will build 10 70-ton covered hopper cars (unit cost 8,600, delivery expected next June), and 225 50½-ft double-door box cars (unit cost \$8,600, delivery expected fourth quarter 1956); ACF Industries, 100 70-ton hopper ballast cars (unit cost \$9,100, delivery expected second quarter 1956) (Continued on page 12)

Mr. Broadley is on leave from his position as mechanical engineer of the Central of New Jersey. After January 1, 1956, Mr. Yellott will have charge of Stanford University's solar energy laboratory at Phoenix, Ariz., and will be secretary of the Association for Applied Solar Energy.

Hardesty Quits ICC after Less Than Two Months

Marion Norton Hardesty, on December 12, submitted his resignation as managing director of the Interstate Commerce Commission "for personal reasons and desires." The resignation will become effective February 1, 1956, but Mr. Hardesty will meanwhile be on annual leave which began December 15.

He had been in the managing directorship less than two months, having taken over October 27 as successor to E. F. Hamm, Jr., first to hold the position (*Railway Age*, October 31, page 12). Mr. Hamm served for more than two years, resigning as of September 30 to return to his former positions as president of Traffic Service Corporation and publisher of its "Traffic World."

Management Speaks

RRs and All Business Face Rising Costs

Like business in general, railroads face the prospect of ever higher labor and material costs in the next few years and need more freedom to price their services in the intensely competitive and no longer monopolistic transportation field, Fred Gurley, president



STEEL STRAPPING provides added bracing for trailer doors of common-carrier vans handled in the Pennsylvania's TrucTrain service. Here an employee of Rail-Trailer Company, which handles terminal operations for this PRR service, adjusts strapping on a trailer door before loading the van on a flat car.



*on
time tables...*

Depend on good lubrication. And with
the expanded use of low cost fuels, good
lubrication is more important than ever.

STANDARD OIL COMPANY (Indiana)



THESE ARE JUST 12 OF 140 RAILROADS SERVED BY STANDARD OIL COMPANY

RAILWAYS IN THE MARKET—THIS WEEK

quarter 1957); Pacific Car & Foundry, 50 50½-ft insulated cars with DF loaders (unit cost \$12,000, delivery April 1956).

PASSENGER CARS

► *Great Northern*.—Ordered one rail diesel car (RDC-3), Budd Company; delivery next June; for Montana service between Great Falls and Butte and Great Falls and Billings.

LOCOMOTIVES

► *Coal-Burning, Gas Turbine Locomotive*.—Test work on a coal-fired gas turbine being developed by the Locomotive Development Committee of Bituminous Coal Research, Inc., is expected to be completed in 1956, and the first locomotive with such power is expected to be under construction in 1957. This was announced last week by R. B. White, chairman of the committee and also of the Baltimore & Ohio. Test work will be performed at LDC's headquarters at Dunkirk, N. Y., in Alco Products' locomotive plant, and will cover improvements in coal-handling, combustion and ash separation.

► *Denver & Rio Grande Western*.—Directors have allocated \$2,500,000 for purchase of 12 diesel-electric locomotive units next year.

► *Illinois Central*.—Ordered 70 general-purpose diesel-electric units from Electro-Motive for delivery next year; estimated cost \$11,900,000.

SPECIAL

► *Norfolk & Western*.—Ordered 10 air dump cars, Baldwin-Lima-Hamilton; delivery August 1956.

► *Western Maryland*.—Ordered four air dump cars, Baldwin-Lima-Hamilton; estimated cost \$52,000; delivery July 1956.

New Facilities

► *Denver & Rio Grande Western*.—Directors have allocated \$1,500,000 to purchase 45 miles of new rail next year; other allocations include: \$200,000 for shop buildings and other facilities, and \$169,000 for improvements to yard tracks, sidings and industry tracks.

► *Illinois Central*.—Roadway improvements for next year include 150 track miles of new rail costing about \$6,215,000; bridge work, \$1,657,000; Randolph Street (Chicago) suburban station improvements, \$93,000; changes in company-owned and industry tracks, \$580,000; extending sidings to accommodate longer trains, \$605,000; diesel repair facilities at Markham and Hawthorne yards (Chicago), \$375,000; shop machinery, \$638,000; and various other improvements, \$3 million.

► *Santa Fe*.—Received ICC authorization to construct 29.5-mile line from Hesperia, Cal., to Cushenbury to reach limerock deposits and serve a cement plant to be erected there; construction of line is expected to be completed within five months.

of the Santa Fe, said in Los Angeles December 1.

Mr. Gurley, addressing the California State Chamber of Commerce, added "from the standpoint of the spirit and mood of the railroads, I am definitely bullish about the future of the railroad industry, but the shackles of outmoded regulation are a heavy burden to carry in the struggle for traffic."

PRR Revamp Fits it For Future, Newell Says

The Pennsylvania's management revamp was no "shake-up" and it was not "forced" on the road. It was the latest step in a 10-year-old program to restore the road "to its preeminent place among American railroads," Vice-President J. P. Newell told the Altoona Chamber of Commerce December 1.

The revamp created nine virtually separate railroads under a general staff and readied them to "meet the challenging concept" of railroading "as a growth industry," Mr. Newell said. Transportation, he added, "cannot help but be a growth industry" as the nation continues to grow, "but what is relatively new in the picture is the idea that railroads will share to the proper extent in that growth."

What constitutes the challenge, he suggested, is that "the degree to which they share is up to us on the railroads." He predicted that with the gross national product of \$535 billion expected for the year 1965, railroads might handle 53% more traffic than in 1954 or 14% more than the peak year of 1944.

Operations

Shoemaker Hails Rising Popularity of Piggyback

With an average gross revenue of about \$141 per car at this time, the Lackawanna's 1955 piggyback operation will gross close to a million dollars, DL&W President P. M. Shoemaker told the New York Society of Security Analysts recently.

He said he has been "delighted" with the shipping public's reaction to the service, adding that there hasn't been a month the road had enough equipment to handle the tonnage presented for piggyback shipment. Moreover, Mr. Shoemaker said, the service is producing business that hasn't been handled by the railroad in 20 years.

Key to climbing trailer-on-flat-car tonnage, he said, is the dependability of the service. Shippers have found they cannot depend on truckers' promises of second-morning delivery New York-to-Chicago, while they can count on piggyback schedules. The service

is proving more convenient, he said, even though some of his line's t-o-f-c rates are higher than prevailing box car rates.

An important factor, Mr. Shoemaker pointed out, is that the service has "keyed up" the enthusiasm of railroad labor which realizes the railroad is out to win back business which must benefit them.

Referring to the case before the Interstate Commerce Commission in which the DL&W seeks to have two directors named to the Nickel Plate board, Mr. Shoemaker said his road wanted the directors placed to provide supervision over the Lackawanna's investment in the NKP. He said it is "unfortunate" the roads must debate such an issue publicly, and added that the Lackawanna's investment had been "trusted in good faith."

Erie North Branch Riders Won't Use DL&W Ferries

The Erie's Northern branch commuters to New York City will still be brought into Jersey City after consolidation of Erie and Lackawanna ferry terminal facilities at Hoboken, the Erie has announced. Connection of the Northern branch with the Lackawanna has been found prohibitive because of differences of elevation where the two lines would join. Approximately 1,500 commuters use the branch between Jersey City and Nyack, N.Y. Under the ferry terminal consolidation, Erie passenger trains would be routed over the Lackawanna from a junction at Secaucus, with passengers of both lines using ferries leaving the Lackawanna's Hoboken terminal (*Railway Age*, November 14, page 8). Northern branch riders will have to use Hudson & Manhattan tubes from Jersey City.

C&O Begins Use of NYC Tunnel at Detroit

The Chesapeake & Ohio began freight operations through the New York Central tunnel under the Detroit river December 1. Car-ferry service between Detroit, Mich., and Windsor, Ont., was dropped at the same time.

The Interstate Commerce Commission had authorized the operation as an adequate substitute for the ferry service (*Railway Age*, October 31, page 42). One of the two ferries used in the Detroit-Windsor service has been transferred to Port Huron to provide additional service between that point and Sarnia, Ont. The other ferry will be out of service.

C&O President Walter J. Tuohy said the trackage rights agreement with the New York Central "follows the present day trend of railroads to co-operate in use of each other's property where paralleling facilities exist for the same use. The end result reduces costs and produces better rail service for the public."

Steel Supply

Steel Shortage Snags Car Building

Survey of Midwest roads points up delayed car deliveries, slow-down on repair work and a tight rail supply

"They don't ask us what we want, they tell us what they will give us."

"We're paying a premium to get steel, and you can say the shortage is definitely affecting our car-repair programs."

These comments, made last week by two top purchasing officers, point up a current railroad headache: Steel is tight, and it's hard to spot any signs of an ease-up before mid-1956.

With the year-end backlog of car orders expected to approximate 145,000, current delivery prospects stretch well into 1957. Many rail programs are also caught in the squeeze, and in some cases car-repair work is dragging.

Railway Age conducted a spot check of midwestern railroads last week, and while the story varies from road to road, generally it adds up like this:

"We're having to buy steel from warehouses, and it takes several calls to fulfill our requirements," said a spokesman for one Chicago carrier. Another commented: "We get steel on a catch-as-catch-can basis. We are giving priority now to our building program, although we hope to upgrade around 14,000 cars next year."

"Our plans to rebuild composite

gondolas as steel cars have been junked and we are going ahead and rebuilding in kind," said a spokesman for a third carrier. "We're short now about 500 tons of MRO steel."

Still another road reports it can't get car builders to give delivery dates before the first quarter of 1957. Deliveries are promised "on what steel is doing now."

How It Happened. — With steel mills operating at top capacity (in the November 5 week at 100.1% of capacity), there still just isn't enough to go around.

Record construction work is keeping steel plate in tight supply. Structural are a little better, and hot rolled plate is probably tightest of all.

A spokesman for United States Steel told *Railway Age* that orders are solid through the first quarter of 1956. Order books haven't actually opened on the second-quarter yet, but it looks like the tight situation will continue at least until mid-year.

Meanwhile, car builders are caught with an abundance of orders they can't fill. One major builder said his company's plants are running at only 50% capacity, with little prospect of any change:

(Continued on page 25)



SANTA FE'S NEW Dallas-Chicago "Texas Chief" began operation December 5, using the new Dallas-Denton cut off. By eliminating the bus transfer at Fort Worth, south-

bound running time was cut 45 minutes and northbound time will be cut one hour and 17 minutes. The new streamliner features lounge cars with Western decor.



DEPENDABILITY

What lies ahead?

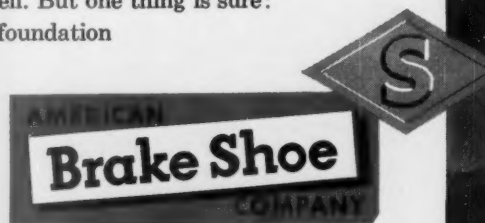
When the signal says stop, it takes only the touch of an experienced hand to keep the train under sure control. Rain or shine—in summer's heat or winter's ice—railroad men all over America rely on today's braking systems . . . and on time-proven Diamond S brake shoes . . . for utmost dependability.

What lies ahead in brake shoes? Only continued research and laboratory testing, together with countless miles of road service, will tell. But one thing is sure:

Tomorrow's progress will be built on today's solid foundation of utmost dependability

You can depend on it.

BRAKE SHOE AND CASTINGS DIVISION



AEB



Questions and Answers FOR THE TRANSPORTATION DEPARTMENT

Can two-way radio communication help make railroad pick-up and delivery service more efficient?

"Proved Its Value"

Several carriers are installing two-way radio equipment on trucks used in LCL pick-up and delivery service. Representatives of some of these roads tell of benefits that radio brings when used in P&D service.

"Two-way radio equipment was introduced and tried on an experimental basis by Railway Express in 1948. Full trial of the equipment was given in 1952 with installations being made on many REA trucks and tractors. Since then, use of this equipment has gone beyond that stage and has proved its value.

"In Chicago, express transfers must be made between 11 terminals. We use more than 400 tractors and trailers in this service, of which 120 units are radio-equipped. It is estimated that the use of two-way radio equipment is saving more than \$120,000 in operating costs, yearly. Records show that 33% more pick-up and delivery stops per route-mile driven are possible through installation of the equipment.

"Radio equipment is now in use in 169 street vehicle trucks and tractors and in 27 depot vehicles in six major cities. Surveys now are under way to determine where the new radio equipment next will be installed.

"Radio communication provides instant contact with street vehicles and permits pick-up requests to be given to the driver within minutes of the initial telephone call. It also enables the driver to be in constant touch with the dispatcher in the event of assignment changes or for handling special emergencies.

"Some radio equipment also has been installed in supervisors' automobiles. This permits a supervisor to maintain constant control of operations and at the same time be available for immediate contact should any problems arise.

"Whether or not radio control of vehicles has potential value in a particular operation is determined by the size of area served and by the amount of mileage between stops in the truck route. Radio especially enables us to keep our traffic moving in a steady flow through more efficient utilization of vehicles covering the large terminal areas.

"Because of the dispatcher's ability to have immediate contact, full control of radio-equipped vehicles makes for maximum flexibility of use. Day-to-day emergency situations can be handled in a relatively routine manner. In the event of train delays, vehicles waiting to transfer shipments need not stand and wait, but can be diverted immediately to other movements. Businesses, as well as universities and laboratories, frequently have special emergency pick-up calls which must

be expedited on our first available service. Often, several such calls are placed by the same shipper within 30 minutes of each other. The radio, newsreel and film industry shipping requirements, with their constant problem of meeting deadlines, also create many 'rush' demands on our service. In many cases only radio-equipped trucks can handle these requirements adequately.

"Pick-up calls can be assigned to the driver within a minute of the time received from the customer. In many instances, pick-ups are actually accomplished within 10 minutes of the call. In a recent survey of actual performance, the average call given to a radio-equipped truck was serviced within 30 minutes. One truck had an average of 15 minutes.

"During the flash flood which struck Chicago last year, Union Station was menaced by rising water. Through radio contact all of our 120 radio-equipped trucks were diverted from their customary routes and directed to remove express shipments from Union Station. Every piece of express freight was safely transported to higher ground before the water inundated the station. Without swift radio communication, this movement would not have been possible and thousands of dollars of shipments would have been damaged by the water.

"Positive results from the use of two-way radio communication for Railway Express have been increased flexibility, efficiency, and far greater utilization of vehicle service."—*R. C. Hendon, vice-president operations Railway Express Agency.*

"Well Pleased"

"At present we have a number of our vehicles equipped with radios. Such equipment is in use at Vancouver, Toronto, and Montreal. The radio-equipped trucks, generally speaking, are assigned to work in the outlying areas of these cities, where considerable new industrial development has taken place. They are also used, however, anywhere in these cities for the handling of special shipments, late pick-ups, etc. Through their use we have been able to reduce overtime payments to some extent. We do not, as a rule, use these trucks in the downtown areas where drivers have regular routes.

"We feel that this equipment has a definite place in our operations and are well pleased with the results we are obtaining."—*S. McMahon, vice-president and general manager, Canadian Pacific Express Company.*

We'll have more on this subject in a subsequent column. Best wishes for the holidays and the New Year to all.
—G.C.R.

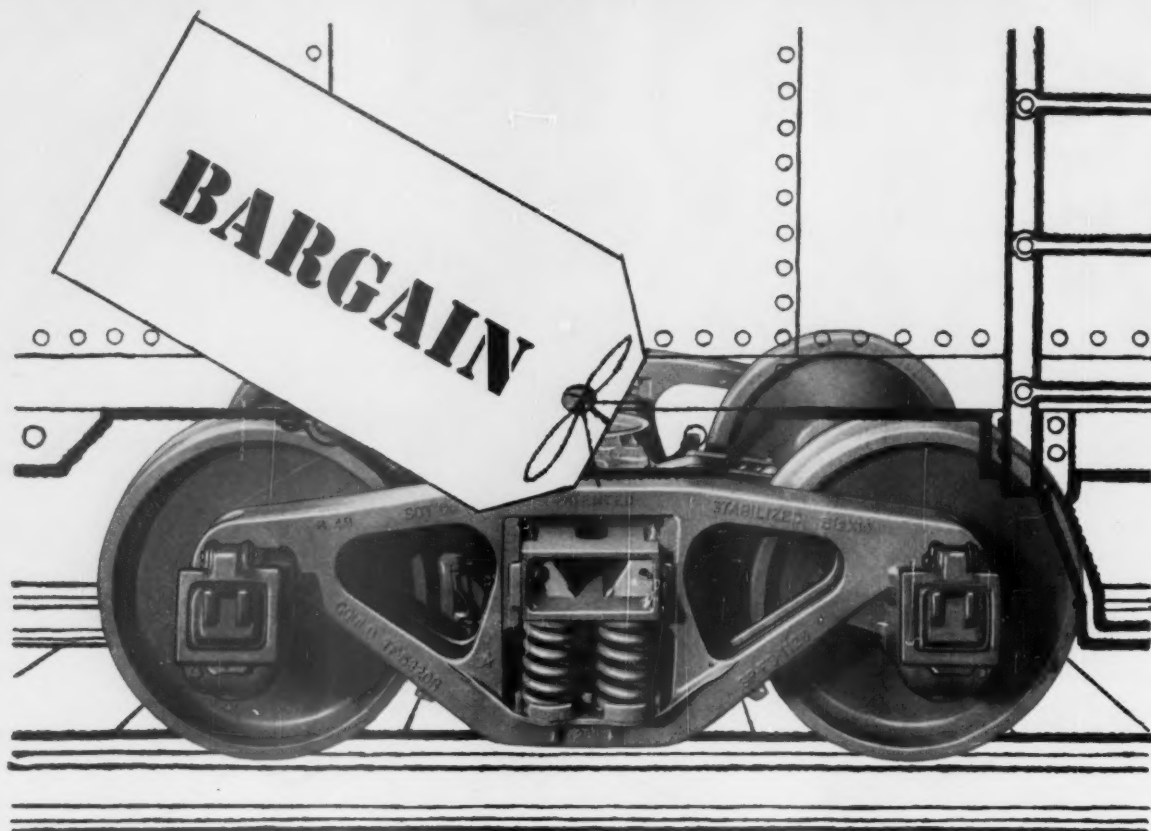
CONDUCTED BY G. C. RANDALL, district manager, Car Service Division (ret.), Association of American Railroads, this column runs in alternate weekly issues of this paper, and is devoted to authoritative answers to questions on transportation department matters. Questions on subjects concerning other departments will not be considered, unless they have a direct bearing on transportation functions. Readers are invited to submit questions, and, when so inclined, letters agreeing or disagreeing with our answers. Communications should be addressed to Question and Answer Editor, *Railway Age*, 30 Church Street, New York 7.



MERRY
CHRISTMAS

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CHICAGO



**COSTS SO LITTLE . . .
GIVES SO MUCH PROTECTION**



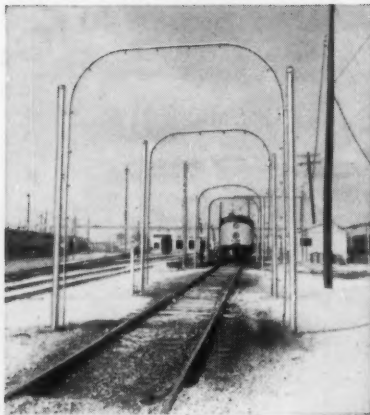
Today Barber Stabilized Trucks are a greater bargain than ever because their savings are greater! Higher speeds mean more chances for costly damage to loadings and equipment.

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We firmly believe that *nothing* you specify does so *much* for your railroad yet costs so *little* as Barber Stabilized Trucks! Standard Car Truck Co., 332 S. Michigan Avenue, Chicago 4, Ill. In Canada: Consolidated Equipment Company, Ltd., Dominion Square Building, Montreal 2.

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Cleans any contour.

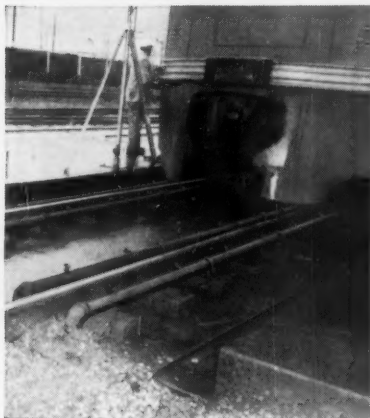
Dearborn...the only system that cleans them all!

The Dearborn High-Pressure Cleaning System washes locomotives (road, switch, steam) and cars—regardless of contour. It automatically cleans tops, ends, sides and trucks; even wheels and bottoms, if desired. Dearborn Pressure Cleaning, when combined with mechanical brush washing, provides the ulti-

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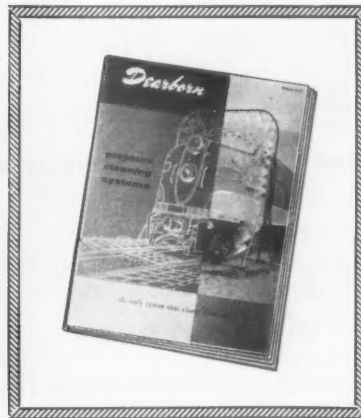
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Cleans wheels and bottoms, also.



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Why Railway Age is the "Workbook of the Railways"

RAILWAY AGE



PRR Begins New Piggyback Service

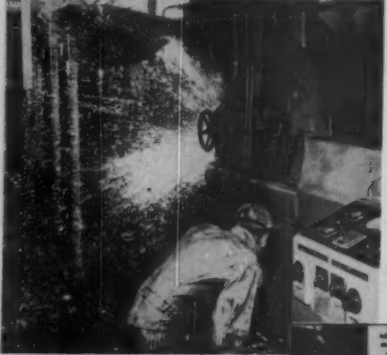
Dozens of motor carriers now moving between Chicago and New York in "Piggyback" service

Longshore and common carrier trucking companies are now moving between Chicago and New York in "Piggyback" service. The service is being operated by the Pennsylvania Railroad Co. (PRR) and the New York Central Railroad Co. (NYC). The service is being operated by the PRR and the NYC. The service is being operated by the PRR and the NYC. The service is being operated by the PRR and the NYC.



Transport in the "Piggyback" service, showing loading and unloading of motor cars.

March 1. It is now the first railroad route for the New York-Chicago route. The service is being operated by the PRR and the NYC. The service is being operated by the PRR and the NYC. The service is being operated by the PRR and the NYC. The service is being operated by the PRR and the NYC.



CRITICAL MOMENT in the welding process. Precision of the joint is essential for the safety of the structure.

LATEST IN BUTT-WELDING Long Rails by Flash Process

Technique developed in Europe for fabrication of rails adapted for use here and is now producing rails on the

At Altoona, N. M., a new design is being tested in the laboratory of continuous cast. These rails are being cast in a continuous cast. These rails are being cast in a continuous cast. These rails are being cast in a continuous cast. These rails are being cast in a continuous cast.



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*Based on the last full calendar year

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desired thickness by spray, brush or roller. It fills small cracks, penetrates the surface for maximum strength and adhesion.

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LIGHT WEIGHT . . . Advanced processing methods reduce weight of STREAMLITE HAIRINSUL by 40%.

PERMANENT . . . Does not disintegrate when wet, resists absorption. Will not shake down, is fire-resistant and odorless.

EASY TO INSTALL . . . Blankets may be applied to car wall in one piece, from sill to plate and from one side door to the other. Self-supporting in wall sections between fasteners.

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HIGH SALVAGE VALUE . . . The all-hair content does not deteriorate with age; therefore has high salvage value. No other type of insulation offers a comparable saving.

OUTLASTS THE LIFE OF THE CAR

That bright new refrigerator car coming out of the shop will someday wear out, be sold for scrap or be junked, but the STREAMLITE HAIRINSUL originally used in the car can be salvaged to be used again. It actually outlasts the life of the car!

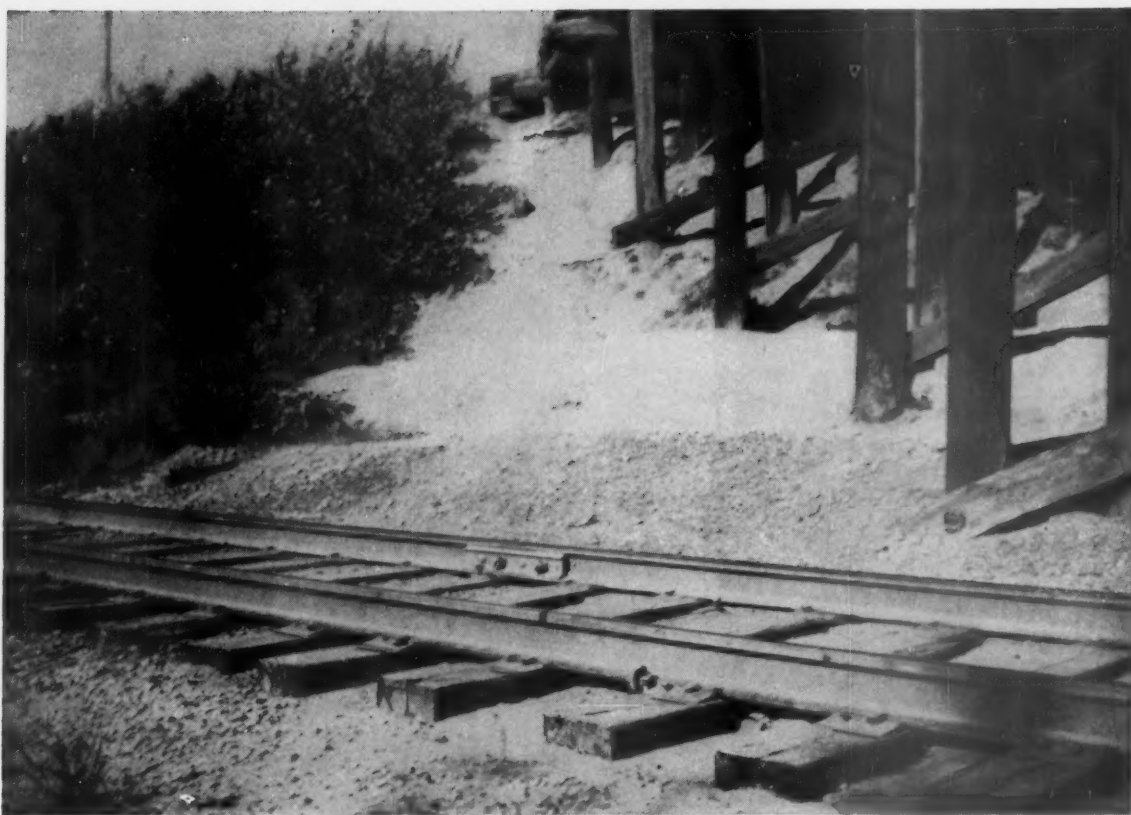
STREAMLITE HAIRINSUL's high insulating efficiency remains the same year in and year out. Records show where all-hair insulation removed from refrigerator cars after 20 years or more of service, is in like new condition. All-hair insulation does not deteriorate with age. Its salvage value is high.

At left are additional reasons why STREAMLITE HAIRINSUL is the leading car insulation. Write for complete data.

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But the initial low cost of BORASCU is important, too. Actually, *Concentrated BORASCU* furnishes a greater amount of plant-destroying ingredient than any other sodium borate herbicide—at lowest delivered cost—so the economy is great.

Yet we like to think BORASCU's popularity is due primarily to the dependable long-lasting results it so safely provides. For instance, the photo shows a weed-free condition after more than 18 months since being treated with *Concentrated BORASCU*!

Why don't *you* investigate this reliable weed-and-grass killer? Write today for descriptive literature. If after reading the details, you would like to see what *Concentrated BORASCU* can do, just say so. We'll arrange a demonstration for you on your road—under your conditions—without charge or obligation.

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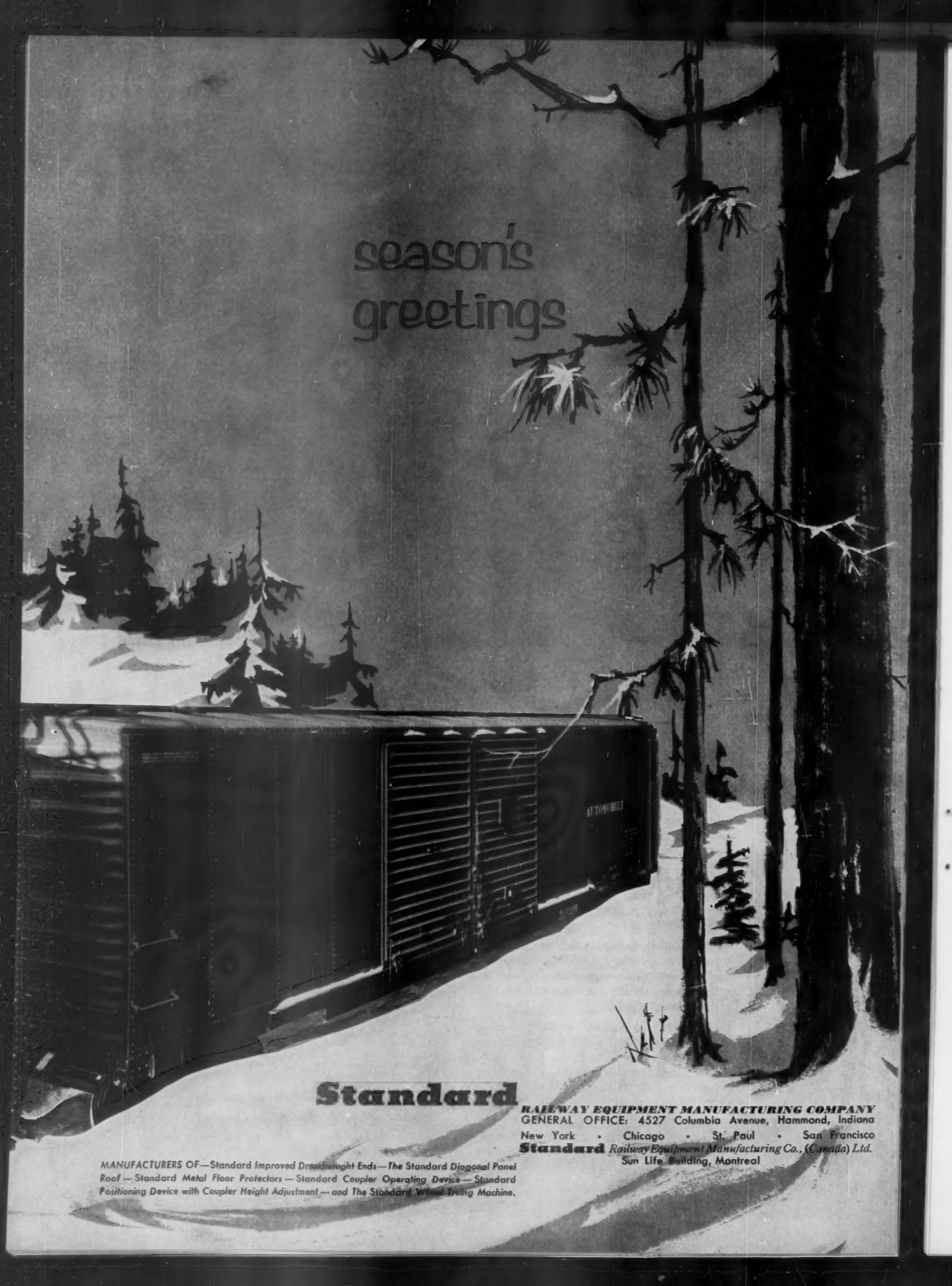
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Steel Supply

(Continued from page 13)

"We ordered our first-quarter steel during the third quarter this year, before the sudden surge in car orders. Now there's small prospect of upping our steel supply. If demand eases for rolled steel for automobiles, we may get a little relief. The shortage is going to cost railroads about six months in delayed deliveries." He predicts that unless steel improves, car deliveries in 1956 won't exceed 50,000.

The American Railway Car Institute puts it this way: "When we could have obtained ample steel, we had virtually no orders; now builders have orders, but cannot get the steel. The estimated 161,800 freight cars ordered in 1955 from car builders and railroad shops not only surpasses the last recent peak of 155,732 for 1950, but is the highest since 1922."

Repairs Are Costly.—Car-repair programs, stimulated by car shortages in recent months, also are being snagged in some cases. Railroads that are going ahead on schedule are often having to pay premium prices at steel warehouses, buying in small lots.

"Our program is costing us more than it should," declared a spokesman for one road. Another said: "We are not experiencing difficulty at the moment, but our rebuilding program is mainly floors and inside work on box cars."

A third carrier said it is short "several thousand tons" of MRO steel, and has had to revise its car repair program. It anticipates a six-months' delay on new car deliveries, and figures on a 60- to 90-day delay for rail next year.

"Railroads are having to build high inventories months ahead of the time the material will actually be required for car construction and rebuilding," according to this road's purchasing department.

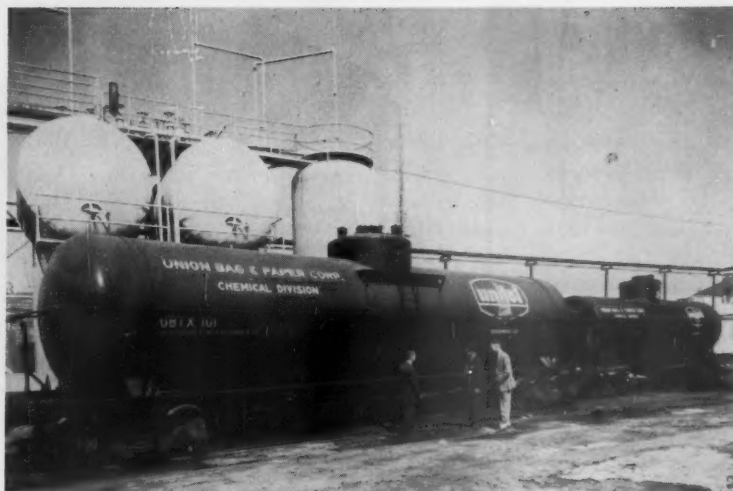
However, willingness to gamble the shortage against a few months of high inventory has paid off for a few roads. They gave steel mills firm commitments early last summer. Now they're well fixed.

"As of today we have no steel shortage. We placed our orders early enough to assure delivery," said one road's spokesman.

"We anticipated this situation," said another. "Our maintenance program is now right on schedule, and our car-building program for 1956 should not be delayed more than 30 days at most. We're pretty well set on rail, too, and should have 90% of our 1956 requirements before July 1."

One Chicago road said it is having "no difficulties at all" because it got into the market early last spring. But it added that its program for repairing 500 gondolas in the second quarter will hinge on availability of steel at that time.

Other roads are not so fortunate. A Chicago carrier said it can't fore-



KING-SIZE 19,000-gal tank car, one of the largest ever registered, was put into service recently by Union Bag & Paper Corp.'s Chemical division. The car, shown next to a standard 8,000-gal tank car at the firm's Savannah, Ga., plant, was built by General Ameri-

can Transportation Corporation. It will transport crude tall oil from the company's tall oil plant to its new distillation plant. Although both plants are on the Savannah plant site, using the tank car proved to be more economical than installing a pipe line with pumps.

see delivery of its rail requirements, and as yet has no firm commitment for first-quarter deliveries.

"If we can't get our rail by mid-year, we may have to curtail our program accordingly," said the road's chief engineer. "We just got approval of one big new job, but it doesn't look too promising as far as rail is con-

cerned. And we're reluctant to buy the ties we'll need until we can see further ahead."

Another major midwest road said the steel shortage is "lengthening" out its car-building program, but if steel mills come through with promised delivery dates "things won't be too bad."

Organizations

U.S. Chamber of Commerce Plans Transport Conference

The Chamber of Commerce of the United States will sponsor a "Transportation Outlook Conference" in Washington, D.C., January 12, 1956.

Speakers and their topics will include: Paul W. McCracken, University of Michigan, "The American Economy in the Year Ahead"; Finley J. Iseman, transportation specialist, Merrill Lynch, Pierce, Fenner & Beane, "The Financial World Looks at Transportation"; Louis B. Rothschild, under secretary of commerce for transportation, "The Administration's Transportation Program," and Representative J. Percy Priest, Democrat of Tennessee, chairman, House Interstate and Foreign Commerce Committee, "Transportation Legislation in the Second Session."

President Perry M. Shoemaker of the Lackawanna, who was chairman of the Hoover Commission Task Force on Transportation, will discuss that commission's recommendations.

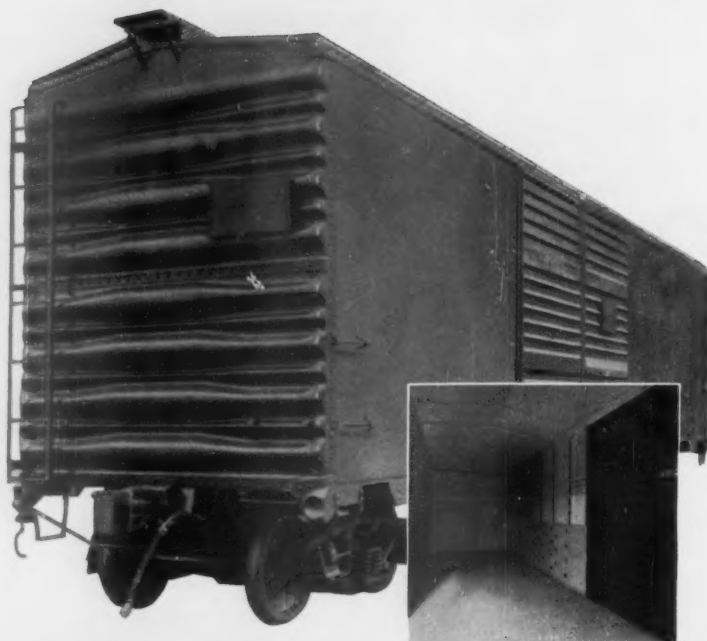
Speakers will be followed by a panel discussion of transportation users' views of trends and requirements in the coming year.

J. H. Carmichael, chamber vice-president, and president of Capital Airlines, will preside at the conference. The conference will conclude with a Congressional dinner at Washington's Statler Hotel, with Boyd Campbell, chamber president, as speaker.

Safety Officers Organize Local Group at Chicago

Safety officers of railroads entering the metropolitan area of Chicago have formally organized the Association of Railroad Safety Officers of Chicago. The group, which formerly met each month on an informal basis, serves as a forum for interchange of information and ideas on subjects relating to both railroad and off-the-job safety.

Officers of the new group include L. C. Hahney, superintendent of safety, Elgin, Joliet & Eastern, chairman; F. C. Lewis, assistant director of safety, Pullman Company, vice-chairman; and C. D. Blue, superintendent of safety, Chicago & Eastern Illinois, secretary.



GACO HELPS KEEP SOUTHERN'S BOXCARS

ROLLING FOR CLASS A LOADING . . .

PROBLEM: Southern Railway System had the problem of cargo damaging the inner walls of its boxcars. Class A rating of the cars was lowered, resulting in a loss of revenue.

SOLUTION: After a full year of testing, Southern specified GACO N-700 Neoprene Coating to protect the steel linings of its fleet of deluxe boxcars. This tough, corrosion-resistant coating was easily applied by roller.

RESULT: GACO coated boxcars have successfully resisted corrosion and the abrasive effects of shifting cargo, maintaining Class A rating. Out-of-service time for extensive maintenance of damaged linings has been eliminated.

There's a complete line of GACO protective coatings available for a wide range of railway applications:

GACO N-700 — Neoprene Coating: For general maintenance and corrosion protection — bus bars in electrical systems, sealing roofs of cabs and hatches, coating canvas connections between air ducts and motors, weather-proof seal for station structures, powerline towers, car roofs, junction boxes, terminals and battery boxes.

GACO N-200 — Heavy Duty Neoprene Liquid Lining: Water tanks for Diesel locomotives, hatch sheets and drip pans on refrigerator cars.

GACO N-700 — Skid-Proof Coating: Steps, ladders, cabs, walkways.

On-the-spot repairs of the N-700 Neoprene Coating can be made quickly and easily as required by railroad maintenance personnel.

Write for complete information on how to keep your boxcars, wood or metal, rolling for Class A loading.

If you have a railroad corrosion problem of any kind, contact the Gates Corrosion Clinic. There's a GACO corrosion specialist in your area prepared to serve you.

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"Jitneys"—and the Certificated Air Lines

Lest anybody get the impression that the railroads are the only industry with a just complaint about the sad treatment accorded to common carriers, listen around among the air transport people.

A recent decision of the Civil Aeronautics Board to recognize some 50 so-called "non-scheduled" operators as bona fide "supplemental air carriers," with the privilege to operate regularly, has dismayed the industry.

Heretofore, the "non-skeds" have—at least theoretically—been restrained from operating on a regularly scheduled basis. The new decision of the CAB (*Railway Age*, December 5, p. 15) means that the non-skeds will be allowed to make up to ten trips a month between any two points. Thus, carriers may schedule flights for the same day or days each week—which formerly was forbidden.

Everybody middle-aged or more remembers the "jitney" which sprung up in practically every American city at the close of World War I. The jitney operators, in competition with the trolley cars, were the progenitors of the whole tribe of "gypsy," pick-and-choose, obligation-less carriers, which have since so widely developed. The jitney operator selected only the best routes, served them only during rush hours, and left the belt lines, the cross-town runs and the "owl" and Sunday services to the franchised traction companies.

The jitney was given a warm welcome by a public which had suffered from congestion and poor transit service, resulting from the inability of the operators to get fare raises to match inflationary cost increases. This same public, however, soon came to the realization that patronage of the jitney would lead, inevitably, to the loss of essential common carrier local passenger service. Ultimately, in virtually every city of the country, the jitney operators were forced either to leave the field or to form themselves into bus operating companies assuming common carrier obligations similar to those of the franchised traction companies.

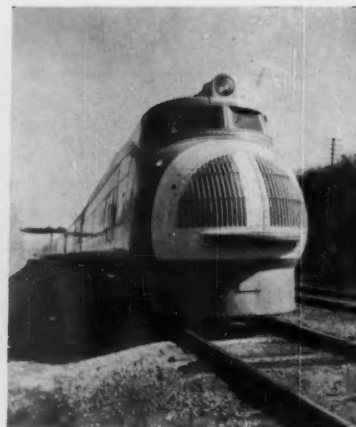
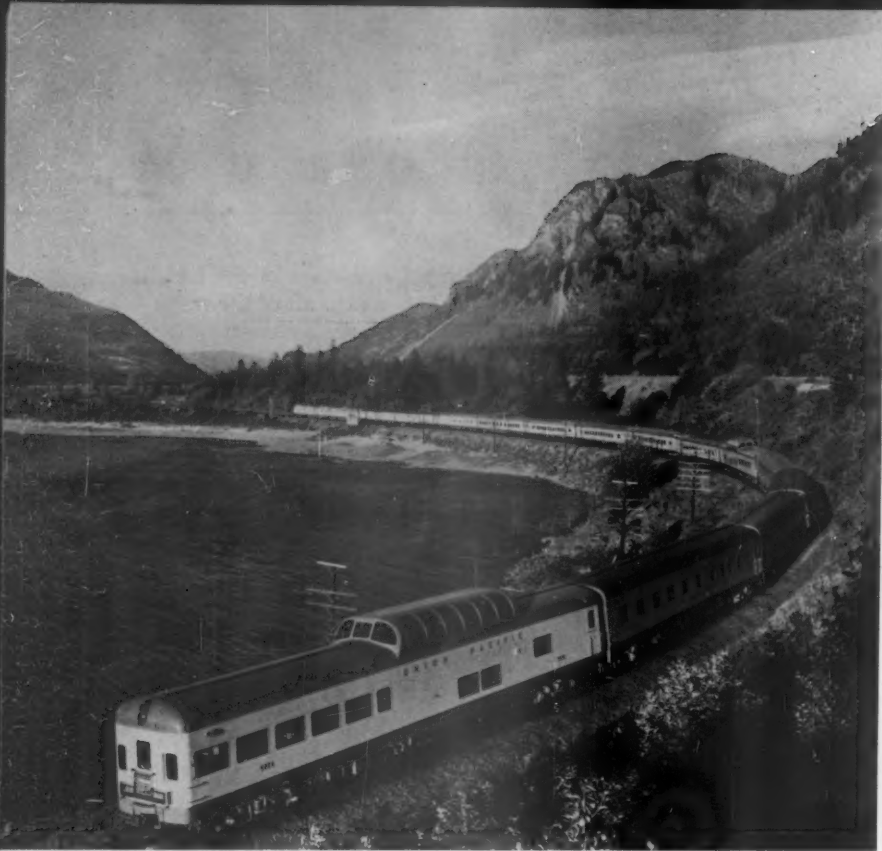
To us groundlings it appears that the CAB's decision increases the privileges of the "jitneys" of the air transport business, without demanding parallel and offsetting franchise obligations in re-

turn. Just as the "fringe" operators in the freight business do not offer to take over all of the traffic—the lean as well as the fat—of the common carriers, it is quite certain that the non-skeds in the air business will prove equally reluctant to take over all of the service obligations of the scheduled operators. As has been said of Sir Winston Churchill, the tastes of the "fringe" transportation operators everywhere are quite simple—they want "nothing but the best."

In building up their case against lowering the bars for the non-skeds, the certificated air lines could not plead either poverty or loss of status. Unlike the railroads, their traffic is growing rapidly and their share of the common carrier market likewise. (Operating revenues of scheduled air lines increased 15 per cent during the first nine months of 1955, and net income, before taxes, 35 per cent. The biggest of them all, American Air Lines, had a 26 per cent increase in revenues during the same period.) The certificated air lines base their argument on the ground that the public requires certain air services which are relatively unprofitable and that, to provide these services under a relatively uniform fare structure, the common carriers must be accorded the right to obtain substantial profits on the "velvet" runs. Thus far, according to the regulated air lines, the non-skeds have concentrated on the most profitable runs in the best seasons.

In short, the regulated air lines will raise the question whether the public, in its zeal for more competition and more service, is willing to forego the protection which the principle of regulated common carriage supplies. It is an age-old concept that society grants privileges to a carrier, in return for which that carrier assumes stipulated public obligations. Thus, the "protected" common carrier cannot behave as other businesses do and must provide some services at a loss—must operate some schedules with less than full loads. If it is going to continue such dependable service, then its losses must be made up from revenues gained elsewhere under the umbrella of some limitation on the right to operate.

It looks as if improved understanding by the public of the value, to it, of common carrier service would be helpful to the air lines, as well as to the railroads. If the two branches of transportation should undertake public education in this area, they'd probably do a more effective job by collaborating than by going their separate ways. This paper has long believed that common carriers—surface or air—have far more interests in common than they do in conflict.



THE 1934 "CITY OF PORTLAND" (above) was patterned after the original "City of Salina," but was equipped with a more powerful engine and two additional cars which contained the first sleeping accommodations in streamlined equipment.

PRESENT-DAY "CITY OF PORTLAND" (left) has aluminum dome observation car, diner and coach as well as the standard coaches and sleepers which also are built with aluminum bodies.

Aluminum on the Union Pacific

By G. B. HAUSER

Head, Railroad Section,
Sales Development Division,
Aluminum Company of America

America's new family of super-streamlined trains today has brought aluminum directly into the railroad spotlight as a passenger-car construction material.

Even as the new streamliners undergo final grooming for their maiden runs, aluminum is demonstrating that it offers a combination of properties desired for high-speed, lightweight train construction.

How does aluminum perform in passenger car service over extended periods? This question can be answered by a look at the experience of the Union Pacific over the past 22 years. This road pioneered the use of aluminum rolling stock and is continuing to profit from its use.

The story of Union Pacific and aluminum began in 1933 with the building of the "City of Salina"—first of the high-speed lightweight trains. This was an all-aluminum* streamliner, using articulated cars and driven by a custom-built locomotive with a distillate engine.

This revolutionary experiment in aluminum construction was a marked success. Between 1934 and 1941 nine additional all-aluminum trains were put into service on UP and 50 coaches and diners were built for the railroad's "Challenger" coach train. Details on these trains are tabulated on page 31.

During the period from 1934 to 1941, the UP experienced a gradual transition in aluminum car construc-

tion. For two reasons, designers for the railroad gradually abandoned articulated passenger cars. First, they found passengers wanted more seating room in traveling UP's long runs than the original articulated cars offered. This objection might have been met without abandoning the articulated arrangement had not a second difficulty emerged from the use of auxiliary head-end power cars. Centering of power facilities in a single car permitted only one source of air-conditioning, lighting or heating. If the auxiliary power equipment went out, the whole train sweltered or froze, as the West's violent seasonal extremes dictated. Union Pacific's solution was to equip its long-haul cars with individual power. This modification, in itself, required a departure from complete articulation. (UP engineers consider articulated cars quite practical on shorter high-speed runs, where power car maintenance is less critical.)

For a while, a modified articulated car or twin-car was employed. It had three trucks, the two end trucks being equipped with four wheels. The center, where the two sections met, was supported by six-wheel truck. A number of these semi-articulated units which have individual power facilities are still in service.

Through this transition to individual 85-ft cars, aluminum was the prime building material for the entire train, including superstructure and floor. Only one difficulty arose with the light metal—and that involved the center sill and other underframe members. The importance in using aluminum for the center sill is obvious, since it affords a weight saving of about 3,000 lb. To meet Association of American Railroads' specifications, an aluminum-copper alloy was used for the center sill. Waste

*The only steel components used in the "City of Salina" were the bolsters.

from car lavatories combined with dirt from the road-bed to make a poultice-like covering. Corrosion set in beneath the coating. In diners, this was accelerated by salt and strong alkaline solutions. Consequently, steel underframes replace aluminum in later designs.

In spite of this situation some cars, including several diners, are still in service with their original aluminum underframes. Here adequate protective measures were employed. Generally, they involved painting the underframes and applying an undercoating similar to that used on automobiles. Spouts on the waste disposals were made longer to drop refuse closer to the ground. It was thus possible to maintain the weight savings advantage of aluminum underframe.

The use of aluminum underframes currently would probably be successful by using an alloy with high resistance to attack—Alloy 6061-T6. This has been blocked during recent years by an AAR specification which states that car structural material yield strength must not be greater than 80 per cent of its ultimate strength. This "spec" was designed to insure ductility in specified steel alloys, but actually does not serve that purpose with aluminum or even with some steels. Efforts are presently being made to correct this situation.

On the "City of Salina," this problem with underframes was not encountered since the aluminum longitudinal structural beams were protected by the fully enclosed "belly" of the train. In fact, when the train was retired in 1941, it was judged that it might have remained in service indefinitely. Commenting upon the retirement of the "City of Salina" to Aluminum Company of America officers, W. M. Jeffers, then president of the UP, made the following report:

"This train was powered with a 600-hp internal combustion engine and, of course, the power car housing this power plant was designed and built to accommodate this particular engine, and so the train was retired for the following reasons:

"1. The power plant was practically worn out, and as this type of power plant is no longer in use, it was practically impossible to restore it; and to have installed a diesel power plant in lieu of this 600-hp internal combustion engine would have necessitated completely rebuilding the power car at prohibitive cost and at a time when the expenditure could not be justified and materials for such construction not available.

"2. The train lacked capacity to handle the increased local work in that territory brought about by the numerous war projects constructed or in the course of construction in that territory.

"3. It has been the policy of the UP for many years to retire rolling stock not needed.

"4. There being no longer a real need for this particular train, there could be no justification for tying the train up indefinitely at a time when there was an extreme shortage of aluminum.

"5. Had it not been for the shortage of this critical war material, the train, when it was retired, would have been housed in our museum.

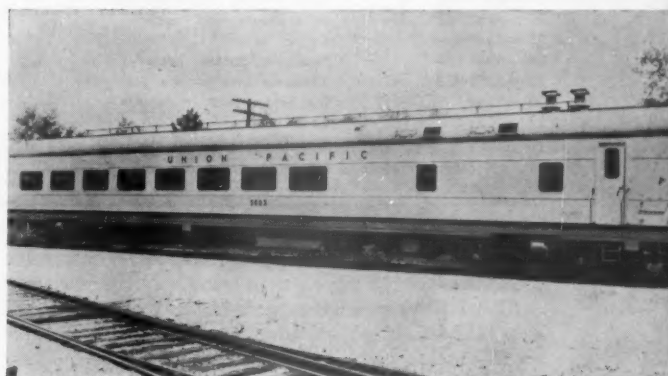
"You will be interested in knowing that the condition of the equipment at the time the train was retired was such that it fully supported the view I held at the time this lightweight train was under construction, that where a railroad was going to the extreme in reducing weight, aluminum was more durable and more practical than

any other type of metal. So far as the condition of the cars was concerned, the train could have been continued in active service indefinitely.

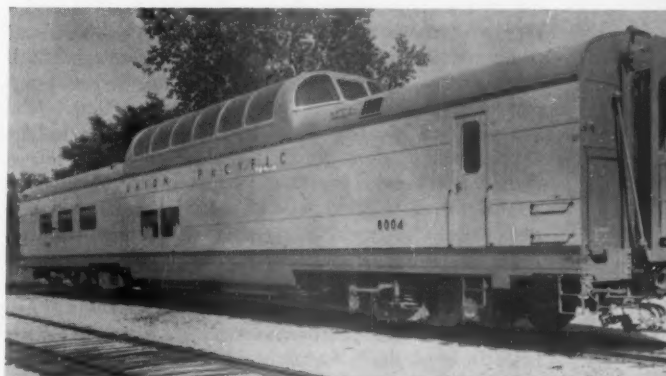
"The announcement of the placing of an order for the construction of this first streamline train was made on May 24, 1933, which was approximately the low point in the business depression. Within less than nine months the train was an actuality. It was delivered on February 12, 1934. A few days before a year had passed from the date of the original announcement, the train had completed a tour of the nation, during which a million and a quarter people had passed through the train and several more millions had seen it from station platforms, highways, etc., along route.

"After a successful experimental performance record of nearly 13,000 miles of practical operation, the train was then one of the principal attractions at the 'Century of Progress' in Chicago until November of that year. The tour of this train, designated from its inception as 'Tomorrow's Train Today,' began with its inspection first by President Franklin D. Roosevelt on February 15. The route which was followed on the tour was determined upon as providing a practical test of the possibilities of this new character of equipment. That route took the train over the rails of 14 different American railroads in 22 different states.

"The total mileage of this train during the period



CAFE-LOUNGE CAR is typical of many standard cars that the Union Pacific has built through the years since 1933 using aluminum alloy body and roof.



ONLY OPERATOR of complete dome dining cars, the ten Union Pacific diners built by ACF this year have continued the use of aluminum. These cars are in service on the "Cities" of Los Angeles and Portland.

LOCATION OF ALUMINUM COMPONENTS is shown in diagram (right) of typical Union Pacific passenger car construction.

Alloy	Description or location
1 —ALC.2024-T3	Roof sheet
2 —6061-T62	Carlines—double
2A —6061-T62	Carlines—single
3 —6061-T62	Purlines
4 —2014-T4	Side plate—two angles
5 —ALC.2024-T3	Letterboard sheet
6 —6061-T62	Window header
7 —ALC.2024-T3	Pier panels
8 —2014-T4	Belt rail inside outside
8A —2014-T4	Belt rail at letterboard
8B —6061-T62	Belt rail between posts
9 —ALC.2024-T3	Girder sheet
10 —L.A.H.T.	Side sill
10A —6061-T62	Auxiliary side sill
11 —6063-T5	Skirts
12 —L.A.H.T.	Floor beams
13 —L.A.H.T.	Cross bearer
14 —Cast steel	Bolster
15 —L.A.H.T.	Center sill—AAR-Z26
16 —Stainless	Floor support on center sill
17 —L.A.H.T.	Floor stringers
18 —L.A.H.T.	Cripple posts at jacking pads
19 —6061-T62	Side posts
20 —Cast steel	Body end sill
21 —6061-T62	Body corner post—vestibule end
21A —6061-T62	Body corner post—vestibule end
21B —6061-T62	Body corner post—stub end
21C —6061-T62	Body corner post—stub end
22 —6061-T62	Intermediate end posts
23 —Cast steel	Buffer beam
24 —6061-T62	Vestibule corner posts
25 —5052-H32	Vestibule intermediate end posts
26 —Steel	Diaphragm post
27 —6061-T62	Door post

GENERAL: Riveted construction. Steel rivets at side plate and side sill. All other connections aluminum rivets or aluminum lockbolts.

in service, or from January 31, 1935, to December 16, 1941, was 899,113 miles.

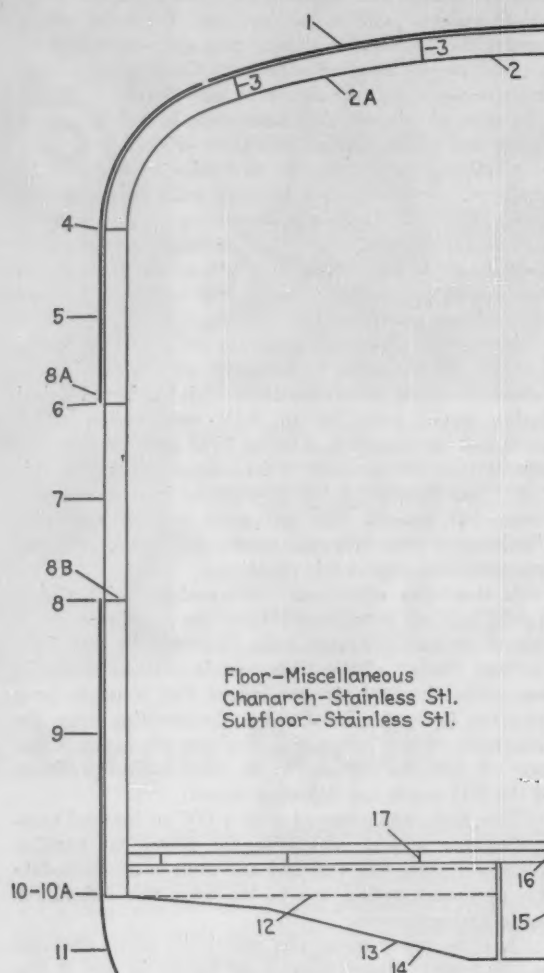
"Total gross revenue earned during the same period was \$717,685.

"Original cost of the train was \$230,997."

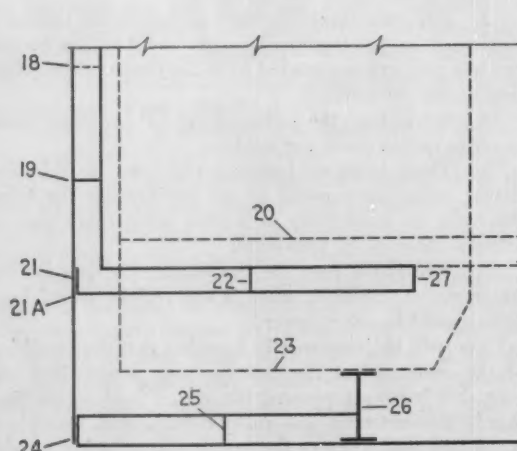
Aluminum in Current Day Cars

The average new coach recently built for the UP is a big unit weighing approximately 136,000 lb. The entire superstructure is aluminum except for the collision end posts and bolster cripple posts, which are steel. With aluminum to lighten the load, the UP uses a heavy underframe. Exemplifying this heavy construction is the end platform and bolster casting, each of which weighs approximately 5,000 lb. This type of construction was designed to provide maximum safety.

The use of aluminum in UP car design was mainly responsible for making possible the safety features. Aluminum's lightness allowed more weight to be put into steel parts without excessively increasing total weight. Also, the aluminum side and roof sheet employed in the car construction was made much thicker than the steel sheets formerly used. This thickness provides much more resistance to denting and collision damage. It is interesting to note that an aluminum sheet 40 per cent greater in thickness than a similar steel sheet still weighs only half as much.



HALF CROSS SECTION



HALF PLAN AT ENDS

<i>Train</i>	<i>Number of Cars and Type</i>	<i>Aluminum Construction</i>	<i>Total Amount of Aluminum lb</i>	<i>Approx. Amount Alum. Per Car lb</i>	<i>Average Length of Car, ft-in</i>	<i>Described in Railway Age</i>
City of Salina M 10,000	3 (articulated)	All aluminum except bolsters	65,870	23,000	67-6	Feb. 3, 1934—page 184
City of Portland, Variation of M 10,001	5 (articulated)	All aluminum except bolsters	162,691	32,500	65-0	Oct. 13, 1934—page 427
City of Los Angeles M 10,002	9 with two power cars (articulated)	All aluminum except bolsters and cross-bearers	292,500	32,500	64-0	May 30, 1936—page 864
City of San Francisco M 10,004	9 with two power cars (articulated)	All aluminum except bolsters, cross bearers, jacking beams and end sills	288,000	32,000	66-0	May 30, 1936—page 864
City of Denver M 10,005	12, of which two were steel power cars (articulated)	All aluminum except bolsters, cross bearers, jacking beams and end sills	322,267	32,200	72-0	July 4, 1936—page 4
City of Denver M 10,006	12, including two power cars (articulated)	All aluminum except bolsters, cross bearers, jacking beams and end sills	322,267	32,200	72-0	July 4, 1936—page 4
City of Los Angeles	14 (no power cars)	All aluminum except bolsters, cross bearers, jacking beams and end sills	298,465	21,320	75-6	Jan. 29, 1938—page 224
City of San Francisco	14 (no power cars)	All aluminum except bolsters, cross bearers, jacking beams and end sills	298,465	21,320	77-2	Jan. 29, 1938—page 224
City of Los Angeles and City of San Francisco	37	All aluminum except bolsters, cross bearers, jacking beams and end sills	824,428	22,280	84-9	.....

Union Pacific states that the use of aluminum allows weight savings of 20,000 lb per car and allows the use of thicker sheet and structural members. This permits its trains to carry one or two extra cars on steep western grades.

Union Pacific engineers also look on weight saving in terms of horsepower economy. Since it is estimated that one horsepower is required for each 500 lb of car weight, the 20,000 lb saved on the average car reduces horsepower requirements by 40 per car.

Approximately 450 aluminum-steel cars are in service or on order. These include the UP's new dome-cars assigned to passenger, lounge and diner service.

An average of 18,000 lb of aluminum is used in current UP passenger cars. This is used in the superstructure, finish and trim of the car.

Maintenance and Repairs

An outstanding advantage of aluminum construction in trains is the ease of maintaining and remodeling cars, as well as repairing those damaged in derailments. Union Pacific has verified these facts through extensive experience.

When a UP aluminum car has been damaged, the riveted or lock-bolted construction allows easy disassembly of damaged parts. Where a section is beyond repair it can readily be replaced by a new one.

Regular maintenance of UP aluminum cars is simple. Since the UP uses paint on car exteriors, this presents a paint maintenance procedure. Aluminum offers a good base for paint and protection lasts the life of the paint itself. When the paint is scratched there is no rust formation, to spread and remove still more paint.

Conclusion

A number of conclusions of vital importance in the current re-evaluation of passenger service can be drawn from Union Pacific's aluminum train experience. Probably the most important was found in W. M. Jeffers' analysis of the retired "City of Salina." His statement reads:

"Where a railroad was going to the extreme in reducing weight, aluminum was more durable and more practical than any other type of metal. So far as the condition of the cars was concerned, the train could have been continued in active service indefinitely."

The use of aluminum by the UP in both articulated and individual car design has proved that the light metal can be used with equal success in both types.

The conclusions on the life and maintenance of aluminum rolling stock are good. The growing pains have been overcome; and the proper alloys of light metal offer railroads an invaluable building material for passenger trains of the future.



"IT'S IN OUR HANDS" says conductor R. E. Whitehead as he gives train orders to engineer W. J. Bowles at Acca Yard, Richmond, where ACL crews take over 109 for first time. Personal efforts of Coast Line personnel play a large part in operating this special train.

We Rode the ACL's 109

... TO SEE WHAT MAKES IT GO

... And witnessed a fast-moving thoroughgoing operation that could be the winning reply to truck competition between Washington and Tampa

By **ROBERT B. KEANE**
Associate Editor

At 5:48 one recent evening, Atlantic Coast Line Train 109 made radio contact with the dispatcher at Rocky Mount, N.C., notifying him it was approaching the yard with 80 freight cars from Richmond and Washington.

By 6:30 the 109 was moving out of the extensive Rocky Mount yard with a fresh crew, its equipment thoroughly checked and 30 cars added to its consist.

The 109, providing overnight service between Potomac Yard and Florida, hadn't been turned over to Rocky Mount yard forces until 6:07, but it received in the following 23 minutes treatment usually reserved for heavy tippers at a super service gas station.

That radio call from several miles north of Rocky Mount had put into motion a planned, systematic, rush operation that is the key to why this train is fast becoming the "baby" of the ACL and the "darling" of north-to-south shippers. The operation is simply a concerted, determined effort to get the 109 in and out of the yard in the shortest possible time.

And what is true at Rocky Mount is true also at the other stops the 109 makes en route: at FA tower, an interchange point just below Richmond where it picked up 12 cars from the Chesapeake & Ohio the day we rode the train; at Florence, S.C., where for the first time cars were cut out of the 109; at Savannah, Ga., where trains running off through the important Waycross yard had to be met; and at Jacksonville, longest stopover point before the 109 went into the last lap to Tampa.

It is the same procedure all along the line—top speeds between stops and maximum efficiency in the yards to keep this train moving.

As the southbound train, powered by four diesel units developing a total of 6,000 hp, eased into position, Rocky Mount yard was poised for action.

Two switchers, one at the head end, the other toward the rear of the 109 as it came to a stop, idled in readiness. Thirty assorted freight cars were ranged on tracks along the length of the arriving train, placed according to classifications so they could most quickly be cut into 109 among cars having like destinations. Inspection teams and oilers were assembled at the approximate center of the train and at both ends, to converge on each other from those points and make certain that each car was serviced.

What might be considered a normal working crew had been augmented by all available personnel drawn from all over the yard as the 109 was given priority over less urgent work. Each man of this oversize crew had a particular assignment with a particular way to perform it. A routine for getting the work done without delay but also without skimping on thoroughness and care had been developed through the experience of several months and when we saw the operation it moved precisely and methodically.

The 109's schedule calls for only a 15 minute stop at Rocky Mount, making such an operation a "must." There isn't time for leaving the task to less exacting procedures and, since the train is in the hands of Coast Line yard forces for the first time here, each car is scrutinized and serviced with special pains.

The delay when we rode the 109—a matter of just eight minutes—was caused by the work involved in picking up the 30 cars that were added to the train there that day, about double the usual number.

Train 109 made its first run on March 22, 1954, re-

placing No. 209. It was inaugurated when the ACL management became convinced that the way to win back whatever north-to-south traffic had slipped away over the years, and to build up the road's volume to levels they felt the Coast Line ought to be handling, was to provide a service—and they stress “service”—that would match or better anything else available.

The ACL was primarily interested, of course, in stemming the inroads being made by truckers and it set out to meet this competition on the truckers' own grounds, in a sense, by emphasizing the fast delivery schedules contemplated for the 109.

The train is made up originally at the Potomac Yard of the ACL's chief northern connection, the RF&P, leaving there daily at 11 a.m. with cars from the surrounding territory and the Northeast in general. At first the schedule called for the train to clear Acca Yard at Richmond at 2:30 p.m. after picking up cars ready there for it. However, this time was moved back to 3:30 to allow shippers more time to make the train for next-morning delivery at Jacksonville. With the hour change at Richmond, though, there was no corresponding adjustment in the schedule for arrival at Jacksonville, leaving the hour to be made up by trimming time in the yards along the way or on the road.

Total running time from Potomac Yard to Jacksonville, 681 miles, is 19 hours and 45 minutes, including the time consumed in stops at FA (the C&O interchange), Rocky Mount, Florence and Savannah. Train crews are instructed, moreover, to improve on this figure whenever possible and the 109 is often reported pulling into the Jacksonville yard as much as two hours ahead of schedule.

The train we rode, as an example, was late leaving Rocky Mount and even later into Florence because of long stretches of slow speed track where road maintenance was under way. But it pulled into Jacksonville before 6:30 a.m., better than 15 minutes ahead of schedule. The time was made up by yard forces at Florence and Savannah and by running the train south of Florence at the ACL's top freight speed of 65 mph.

Compare These Times

Looking at the 109's schedule in comparison with some of the Coast Line's best Florida passenger trains, this operating time takes on added significance. The “West Coast Champion,” for one, makes the Washington-Jacksonville run in 13 hours and 5 minutes; the “Havana Special” runs it in 15 hours and 40 minutes; and the “Everglades” takes 16 hours and 10 minutes.

As a further illustration, Train 211, which might be considered an average freight train, makes the Washington-Jacksonville run in 28 hours and 30 minutes, leaving the capital city at 8 p.m. and arriving at Jacksonville at 12:30 the second morning.

Even with advance notice of such schedules, however, the 109 apparently attracted little if any more business when it first went into operation than had been handled by the 209. Shippers perhaps were cautious, wanted to see if the ACL could actually provide the sort of service that was promised. There are indications, too, that the road itself did not promote the 109 too hard at the outset, possibly taking time to let the operation “shake down,” as with trial cruises for ocean liners.

In time, however, probably as word of the new sched-

ules and performance spread about, business improved noticeably. In June 1954 there were just 2,025 cars hauled on the 109. The same month a year later this figure had increased to 3,000 cars hauled out of Richmond for Florence and beyond.

And, in addition, a second section was put on, running somewhat later in the day but on the same not-a-moment-to-spare basis from Richmond to Rocky Mount. It handles fast freight classified for Rocky Mount or for connections with other trains at that point.

Still another section, though the ACL considers it as a continuation of the second section, was put on later, making up at Rocky Mount with cars for Florence and beyond and leaving Rocky Mount in mid-afternoon so that it actually precedes the first section into Jacksonville the following morning.

With business still growing from Washington to Jacksonville, Coast Line officers took another look at the service to see where it could be extended further, and on June 12 this year the 109's run was stretched to Tampa, giving shippers next-evening service between Potomac Yard and that Gulf Coast Florida city. The same first-class freight service was continued over the added leg, where previously cars classified for Tampa had been cut out of the 109 at Savannah and routed via Waycross. Now, even with a two-hour layover at Jacksonville, the extra 238 miles across Florida adds only 10½ hours to the running time of the 109, for delivery in Tampa at 5 p. m., just 30 hours from Washington.

One More Step

The day after this Tampa service was inaugurated, the Coast Line took another step which, while actually a completely distinct move, further illustrates the road's confidence that this type of service can be sustained.

For, on June 13, 1955, a northbound companion to the 109, No. 110, was put on to run from Tampa to Washington on an even faster, tighter schedule. It leaves Tampa at 7:30 p.m., reaches Jacksonville by 2:45 a.m., clears there in under two hours, and is due to arrive at Potomac Yard by 12:15 a.m. the following morning, a total of 28¾ hours elapsed time.

What distinguishes the 110 from the 109—other than its northbound movement—is that the 110 was originally designated as a special train to haul the phosphate rock which makes a large share of the ACL's south-north tonnage. But this northbound service had hardly been inaugurated when labor troubles brought production in the Florida mines to a virtual halt, stripping, it would seem, the 110 of anything to haul.

However, the schedules published for the 110 proved so attractive to Florida shippers of other merchandise that they billed their freight specifically for this train, with the result that the ACL found itself in the enviable position of being able to run the train—with negligible rock loads—at tonnages equaling or surpassing those that had been anticipated.

Among those who saw the worth of the service were the perishable goods shippers, notably the frozen concentrate manufacturers, many of whom found the 110 more convenient to use than the Coast Line's 210, a fast, all-refrigerator train running the same route.

In time a second section was added to this northbound train, too, running mainly from Savannah to



PLENTY OF POWER is a must for the 109 in order to maintain its road-limit speed of 65 mph hauling 100-car trains from Washington to Florida in 30 hours or less. Usual combination of diesel units develops 6,500 hp.

Florence with cars from western Georgia and northerly Gulf Coast points, although, when volume warrants it, this section may run as far as Richmond.

Sources of the Traffic

A natural question raised by these fast train operations, both the 109 and 110, is "where does the new traffic come from?"

Certainly, some of the volume hauled on these trains comes as a result of increased industrialization of the South which involves shipments of raw materials into the South and more finished products being shipped out. Some of the northbound tonnage comes from the concentrate producers in Florida and, just as surely, a considerable volume is freight that has been diverted from slower, second-class trains to the 109 and 110.

But part of it, possibly a major portion, must also have been diverted from competing truck lines now that rail service has been found superior with the new schedules to that the truckers can provide. The rail rates, still the same as they were under the old schedules, provide additional incentives to shippers.

Going back to the reasons for instituting the 109 in the first place, it is acknowledged that truck competition had become an increasingly serious factor to the ACL, particularly with increasing numbers of refrigerator combines and larger capacity trailers appearing on the good roads and highways running along the East Coast.

The attitude among Coast Line officers seems to be that, in the 109 service, they have found a way to combat the trucker. In fact, there is a somewhat restrained gleefulness because, if there is any "edge" in the competition now, it lies with the railroad.

Already, some of the lessons born of experience with the 109 are being applied to other ACL operations. Starting October 31, an improved service for handling fruits and vegetables from Florida to eastern and western destinations was set up in collaboration with other roads forming through routes with the Coast Line. Third morning deliveries for consumers in New York and Chicago have been made possible with produce from such Florida points as Fort Myers, Immokalee and Sarasota.

Such procedures as the yard handling of the 109 are likely to be applied to other trains in varying degrees to cut intermediate terminal time. For, behind the operation of this train is a background of concerted effort among officers and subordinate personnel in all departments to make the operation succeed.

In the planning stages for the 109's operation, schedules were dovetailed with minimum leeway periods for the train to clear each yard in the shortest time. Simultaneously, the schedule had to be geared to shippers' needs to enable them to meet the train. Connections with

other trains had to be considered, too—particularly at Florence where the 109 meets the fast 129 to Atlanta via Augusta; and at Savannah, where it connects with the 119 running to Waycross with freight for Birmingham and other Alabama points, Georgia and West Florida.

Once the train was in operation, it became the job of division superintendents to make sure these schedules were maintained and to see that any flaws in the operation that would tend to delay the train consistently were eliminated. The details of how many men would be needed to clear a train through a given yard in the time allowed were worked out and the methods used in inspecting equipment were perfected.

Hot Boxes "Precooled"

Immediately, the question of how to handle hot boxes became an obvious problem because there was not enough tolerance in the schedules to permit delays on the road.

Just as apparent as the problem was the fact that the solution lay in treating the hot boxes, you might say, before they occurred. Techniques for handling disabled cars could be developed just so far to reduce the delay involved and so a program of preventive maintenance was worked out, tying in with the systems for rapid handling of the 109 in the yards.

Inspection procedures were intensified and yard crews and supervisory personnel were alerted to be especially vigilant against all possible sources of journal failure. Finally, new standards were set for changing of brasses on this train and special facilities were set up, primarily at Rocky Mount, to permit brassing operations to be completed without moving the affected car off its track.

All this seems to have developed among ACL personnel an attitude of special pride in this train. Its special nature is constantly stressed and yardman, brakeman, supervisor and clerk all seem to regard the 109 as one train that must be kept on schedule "regardless." The brakeman tells you he looks longer and more carefully for signs of trouble as he scans the cars strung out around a curve. You get the impression from a conductor that when he runs the 109 he is making sure that everything under his control goes extra smooth.

You see an oiler actually running from journal to journal, checking everything thoroughly, but not taking time to walk between stops. You find a trainmaster exceptionally well-informed on the details of this train's operation and you learn that he and others like him have ridden it for weeks at a time studying its operation.

The results of all this would seem to be seen in the extensions of the service—the two additional sections, the addition of Tampa to the 109's run, the inauguration of the 110—and the very distinct impression that the ACL has other things up its sleeve for this train.

Telecasting—from a Moving Train

D&RGW joins with NBC to present
“live” TV show from camera on a diesel

A television camera mounted in the nose of a Denver & Rio Grande Western diesel recently gave nationwide television audiences an “engineer’s eye” view of the road’s scenic Moffat Tunnel route. The live telecast, described as the first ever made from a moving train, was part of the National Broadcasting Company’s Sunday TV program, “Wide Wide World.”

The nose camera was connected to a microwave “dish” mounted in the front of a special Vista Dome. This “dish” transmitted the picture to a similar “dish” on a nearby mountainside from which it was fed into a microwave relay and in turn to the nationwide network.

Television cameras were also placed on a nearby hillside to photograph the train from above while it was rounding a long sweeping curve. Weeks of preparation by the Rio Grande and television and telephone technicians went into the one minute, 15-second program. Locating cameras, testing relay locations, installing equipment in the train, and numerous test runs were all part of the preparation.

One day before the telecast the entire train made a “dress rehearsal” run to check timing, equipment, and transmission. The special train consisted of seven coaches, one Vista Dome coach, and two lounge cars. All special equipment was carried in a ski train snack car behind the locomotive. Special television sets were installed in each coach so passengers could see what the camera saw throughout the trip.



MICROWAVE “DISH” transmitted the picture from the camera to a similar “dish” on a nearby hillside.

A NATIONWIDE AUDIENCE saw this view (right) from above as the special train passed around a long curve.



TELEVISION CAMERA mounted in the nose of a Rio Grande locomotive ready to make live telecast from a moving train.





KEYNOTE SPEAKER at the RSPA meeting, R. E. Johnson, vice-president—operations, Rock Island, is at the podium. Others on the platform (left to right), N. A. Sorenson, SP, RSPA vice-president; W. A. McClintic, C&O, RSPA president; and G. B. Dutton, DT&I, RSPA program chairman.

How Much Operations Research?

Railway Systems and Procedures Association hears need for this management tool is great—Use and advantages of research techniques examined

There is real need for research into all phases of railroad operations. This thought, expressed by R. E. Johnson, vice-president-operations of the Rock Island, caught perfectly the theme of the December 6-8 meeting in Chicago of the Railway Systems and Procedures Association. The association's program consisted of case studies of research as applied to railroading.

One of the problems mentioned by Mr. Johnson as urgently needing solution, if the railroads are to keep increasing expenses in line with revenues, is control of inventories of materials and supplies. On the last day of the meeting, representatives of the Southern Pacific and Stanford Research Institute described that railroad's new inventory control system. This system, in effect only a few months, is enabling the SP to reduce substantially the cost of running its supply operations while cutting the value of inventory carried. Members of the team who made the presentation were: L. E. Hoyt, assistant to general manager, SP; George Feeney, senior operations analyst, Stanford Research Institute; G. C. Freeborn, assistant to general purchasing agent, SP; and G. E. Hinton, assistant general storekeeper, SP.

The heart of the SP's new system is an effort to balance costs of the various basic expense elements in supply operations. Thus, the system is designed to give the railroad the most economical balance when the following expenses are considered: (1) cost of holding materials; (2) cost of running short of materials; and (3) cost of placing orders.

Materials holding and order costs are relatively easy to determine, the SP representatives pointed out. The real difficulty was to determine the cost of a stores department's failure to have on hand some item of supply when it was needed by the using department. After consultation with the using departments the SP-SRI team came up with the answer that on the average each such shortage cost the SP \$1.60.

With costs determined it was relatively simple for Stanford Research Institute's Operations Research people to come up with figures for new order levels to balance these costs. The mathematical equations developed, however, were too complex to be managed readily by the

section stockmen, the people who have to handle the system which dictates when to order and how much. Hence, the new instructions for the stockmen had to be put up in a simple form to allow for speedy operation. Lower and upper limits for stocks were defined for items, with two main factors considered—(1) average monthly consumption; and (2) price of the item. Order level tables showing all the data necessary for operating the system successfully were prepared.

Once these tables had been worked out, SP and Stanford Research thought it desirable to "prove" how the system would work out. A field trial, while desirable, would take too long. Hence, an electronic computer was brought into the picture.

A random sample (one per cent) of the 70,000 items covered by the new procedures was selected, and all data pertinent to ordering, storing, or shortages of these items for a twenty month period was collected. The computer was programmed so that it would simulate all the decisions of the section stockman in regard to ordering, when applying the new rules to the stock situation at the beginning of the period, plus subsequent consumption. Then results under the old and new systems were compared. It was found that the number of orders would be reduced, the number of shortages would be cut slightly, while the amount of money tied up in inventory declined substantially. Thus, in about two hours of machine time the SP was able to see how its proposed system probably would work out. The computation involved in getting the answers, Mr. Feeney estimated, would have required about 12 man-years to work out by conventional means.

With its new system "proven," the SP felt justified in putting it into effect. The new inventory procedures were installed gradually over a four-month period beginning about mid-year 1955. To date, the SP reports, everything's working nicely.

Mr. Johnson, in his keynote address, also mentioned the railroads' need for market research activity, to determine customer desires as well as traffic available to the carriers. Two officers from Railway Express Agency followed Mr. Johnson on the platform and described how

a combination of market research and planned merchandising is enabling that carrier to regain some business.

George Cole, REA's director of market research, told how the use of consumer research sampling techniques is enabling the agency to determine potential business available to REA and the level of rates necessary to get that business. Coupling to this research knowledge of the cost of handling additional traffic levels, REA is able to determine how profitable specific rate reductions can be to the carrier.

But rate reductions alone do not always bring in the business carriers think they should. E. L. Inwood, director of business planning of REA, explained to RSPA members and guests how REA goes about merchandising new commodity rates, or new services, it establishes. Advertising in practically all its forms is used by the carrier to get its message across to the shipper public. TV and radio spot announcements are used, as well as direct mail, business papers serving the industry which gets the new rates, and newspapers in the areas where such business originates. REA's press relations department gets to work to see that newspapers in the traffic-originating areas, as well as areas where consumption of the product to be shipped is heavy, carry news stories on the new service or rates. Trade associations affected are urged to get out to their members notices, furnished by REA if desired, of the new tariffs and other details.

Industrial Engineering

A group of New York Central officers talked of the advantages of industrial engineering as a management tool. A. W. Laskoske, general manager, NYC Lines East, told how the road's industrial engineering department, led by A. B. Pulliam, chief industrial engineer, cooperating with line officers, had gone about studying a yard consolidation project at Buffalo, N. Y. Mr. Laskoske said that the new yard, which would replace seven present-day yards, would save NYC customers some 225,000 car-days per year on freight being handled into and out of Buffalo. This would be possible, he said, in part through eliminating duplicate handling and provision of better facilities for classifying cars.

A. A. Burkhardt, the NYC's general supervisor of stations and motor service, stated that Mr. Pulliam's industrial engineers, working with line officers, had installed new methods for handling freight at one large station on the system. The new methods led to an increase in production there of 30%, Mr. Burkhardt said, and had cut the cost of operations by 23%.

New York Central personnel also described the advantages which the IBM-650 electronic data processing machine had brought to their car accounting work. The speed with which the machine works, said H. M. Tirmenstein, NYC auditor car accounts, has enabled the railroad to handle a substantial increase in car records during part of 1955, with no increase in personnel. W. L. McFarland, assistant auditor car accounts, and L. W. Pingel, Jr., a special representative of IBM, also told of some further advantages which would accrue to the railroad, when, some time in 1957, an IBM-705 electronic computer would be put to work. One of these advantages is that the railroad will then be able to get a daily printed record of the last move of every car on line. Also the

JOHNSON ASKS SOME QUESTIONS

In pointing out areas where more research into railroad operations is called for, R. E. Johnson, vice-president—operations, Rock Island, said to his RSPA audience:

"I'd like to know:

"Why we use an accounting document for car movements;

"Why so much clerical time is spent on an elaborate system of reporting past activities and comparisons, rather than current activities;

"Why we spend so much time with freight trains at each terminal;

"Why it is necessary to wait so long for actual figures on performance, both income and expense;

"Whether our trains, both freight and passenger, are being operated to suit the customers' requirements, or . . . our convenience;

"What is the rate of return on the specialty cars or special parts cars;

"If the rate of return on trucks, trailers and automobiles used in maintenance-of-way work is commensurate with the expense of purchasing and operating such equipment;

"Why our car distribution system is so antiquated;

"Why we could not have a ticket which . . . would permit the agents' and auditors' accounting to be accomplished automatically by the use of specialized equipment."

Mr. Johnson also called for research on the following subjects:

The cost of—and returns from—special services performed;

Utilization of the potential capacity of all types of equipment;

Labor and material costs for units of work performed in repair of equipment;

Overhead shop expenses in relation to production;

Simplification of freight tariffs;

The feasibility of a central "bureau" equipped with electronic computers, for doing the data processing work of a number of roads.

NYC will be able to know daily its current debit or credit per diem position. Further, it will be possible for the road to get a daily car delay report by location.

E. E. Slack, assistant superintendent, motive power and equipment, Chesapeake & Ohio, told of his railroad's work simplification program in the mechanical department. Work simplification is defined by Mr. Slack as an organized "common sense" approach applied to analysis of the methods used in doing work. The C&O approach, Mr. Slack said, tries to get people interested in wanting to find better methods. Results of the program, he declared, have been excellent.

J. L. Parker, manager of the Pennsylvania's mechanical department methods and cost control group, stated that the work of this group had helped the PRR cut by about \$10 million, yearly, its maintenance of equipment costs. Mr. Parker outlined briefly some of the production indices set up for measuring the efficiency of the railroad's mechanical forces.



NEW EXTENSION, shown by broken line, will tap undeveloped area rich in mineral resources.

TRUSS SPAN on north shore is in position in this view and is being used as anchor while span over main channel is erected by cantilever method. Note ties connecting top chords.

TO BRIDGE A SWIFT STREAM . . .

Engineers Use Cables and Cunning

In constructing bridge across turbulent river in Canada it was necessary to start erection operations on far shore and work back

When a new line is built up to a stream, the obvious way to construct a truss bridge across it is to start on the near shore, but conditions sometimes prevent use of the obvious procedure. Canadian National engineers recently found it necessary to do the job in reverse; construction had to be started on the far shore, requiring that materials and members be carried across the river piece by piece. Another interesting aspect of the project is that one of the two truss spans comprising the bridge was erected, at least partially, by the cantilever method.

The bridge in question is on a new line being built by the CNR to tap an undeveloped region in the Chibougamau area of northern Quebec. The new line is an extension of a branch that connects with the main line at Barraute, Que., and extends in a northerly direction through Beattyville. From the end of this branch, the new line, now under construction, will extend northeasterly 159 miles into the Chibougamau area. It will then swing easterly to connect with another CNR line at St. Felicien in the Lake St. John area. The whole project will require the construction of 294 miles of line, which will include a 6-mile segment extending to the townsite of Chibougamau.

Swift Stream Was Problem

The railroad is encountering the usual problems involved in constructing a new line into rugged, sparsely inhabited country. The most difficult single obstacle was presented by the Bell river, 11 miles from Beattyville. This is a swiftly flowing stream in which the current has an estimated velocity of 20 knots. For this location CNR engineers decided on a two-span through-truss

bridge on concrete abutments and center pier. A length of 200 ft was selected for each of the two truss spans.

One of the spans extends over the main channel, while the other (the most northerly) is on dry ground; at least it was dry at the time of construction. Because of the swift current, it was not practical to use falsework in constructing the span across the main channel. For this reason it was decided to erect this span by the cantilever method, using the other, or northerly, span as the anchor. This procedure, of course, required that the latter span be erected first.

Cableway for Carrying Materials

Materials for the bridge were brought in over the new line that had been built up to it from the south. The railroad then faced the problem of getting the bridge materials across the river to start construction of the bridge.

For this purpose a cableway was constructed, which involved the erection of a needle mast on the north shore.

This mast was fabricated from members transported over 17 miles of highways and through 12 miles of dense bush. From the mast the cableway extends to an A-frame on the south shore.

To permit men to move back and forth over the river during the construction operations, a catwalk was suspended between the south abutment and the intermediate pier. As a safety precaution, life preservers were placed at intervals on the catwalk.

The first step in the bridge-erection work, after the substructure had been built, was to provide temporary



MEMBERS for bridge are brought to site over newly built track and then take . . .

. . . **TO THE AIR** by means of cableway (right). This member is on its way to north shore span off to the right.



LOOK AHEAD (center) shows needle mast for cableway on north shore and new roadbed extending into bush.

LOOK BACKWARD (bottom) from top of northerly (anchor) span, showing span over main channel taking shape. Note base of A-frame support for cableway.

wood falsework for the erection of the northerly span. After this span was in place it was used as the anchorage while the span over the river was erected from the north shore by the cantilever method. This is the first time Canadian National engineers have used the cantilever method of construction, although other bridges on the system built by private firms have been erected by that method.

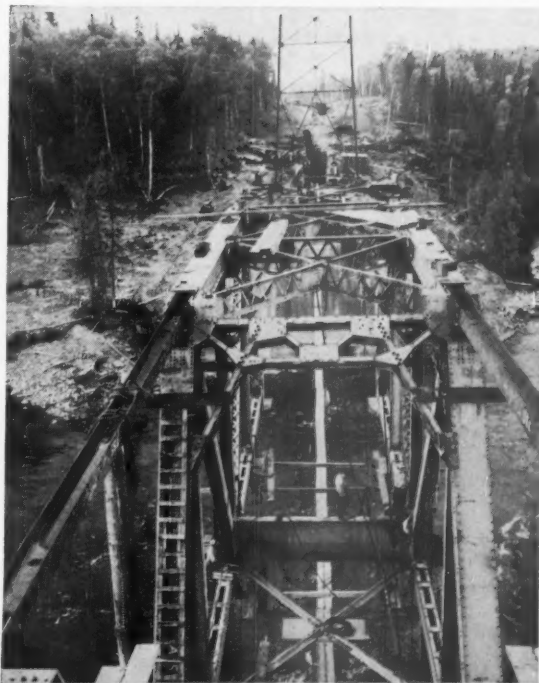
A number of other steel bridges will be required in the construction of the new line but they'll all be smaller than the Bell River bridge. Also an aggregate total of about 1,600 lin ft of wood trestles will be constructed.

The track structure will consist of 85-lb rail laid on treated softwood ties. All ties will be plated. The maximum grade encountered on the new line will be 1.25 per cent and the maximum curvature will be 4 deg. Sidings will be spaced at intervals of 10 miles.

It is estimated that the new line will cost approximately \$35 million. Private construction firms are doing the clearing and grading work, the installation of culverts, and the construction of trestles and bridge substructures. The track-laying and ballasting operations are being done by CNR forces.

Ore deposits of more than 10 million tons have already been discovered in the Chibougamau area. The resources consist of gold, silver, copper and zinc. There is also said to be a good possibility that iron ore is present in the area. Forest growth immediately adjacent to the new line is estimated at 12,000 square miles, representing a total of about 12 million cords of wood.

Surveys for the Chibougamau area project began in May 1953. The line from Beattyville to Chibougamau is expected to be open by the end of 1956.



Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended December 10 totaled 727,228 cars, the Association of American Railroads announced on December 15. This was a decrease of 988 cars, or 0.1%, compared with the previous week; an increase of 73,697 cars, or 11.3%, compared with the corresponding week last year; and an increase of 75,277 cars, or 11.5%, compared with the equivalent 1953 week.

Loadings of revenue freight for the week ended December 3 totaled 728,216 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS			
For the week ended Saturday, December 3			
District	1955	1954	1953
Eastern	124,880	110,004	112,931
Alleghany	143,801	119,319	126,437
Poconahans	60,672	50,173	48,699
Southern	133,198	123,299	120,937
Northwestern	83,905	79,637	76,029
Central Western	125,275	120,524	119,126
Southwestern	56,525	58,821	57,867
Total Western Districts	265,705	258,982	253,022
Total All Roads	728,216	661,777	662,026
Commodities:			
Grain and grain products	47,064	48,666	44,194
Livestock	11,835	10,122	9,419
Coal	147,549	121,584	116,813
Coke	13,158	8,765	11,531
Forest Products	43,613	44,971	42,469
Ore	26,604	17,982	19,114
Merchandise l.c.l.	61,141	61,033	64,555
Miscellaneous	377,252	348,654	353,931
December 3	728,216	661,777	662,026
November 26	676,685	583,520	596,230
November 19	771,648	697,346	725,732
November 12	796,632	708,749	727,058
November 5	808,709	696,026	747,868
Cumulative total, 48 weeks	35,194,709	31,528,962	35,986,825

AAR Price Index Reached All-Time High in October

The Association of American Railroads' price index was at an all-time high of 130.2 in October. The previous peak was this year's April figure of 126.2, the index having dropped, meanwhile, to 125.8 in July.

This was shown by the latest issue of the index which is published quarterly by the association's Bureau of Railway Economics. The index reflects average unit prices of materials, including fuel, on the basis of the average of the mid-year spot prices of 1947, 1948 and 1949.

October's 130.2 was an increase of 6.3 points above October 1954's 123.9. The latter was only one-tenth of a point above October 1953's 123.8.

Briefly ...

... Support of salary increases for ICC members up to at least \$21,000 was approved by the User Panel of the Transportation Association of America at Chicago recently.



NEW UNION PACIFIC stockyard facilities at Council Bluffs, Ia. (above), have been completed at an estimated cost of \$50,000. There are 40 pens, each capable of holding a carload or

more of stock, and eight double-deck, stair-step type loading chutes for safe, fast and easy loading and unloading. Alleys and crowding pens are floored with concrete.

Financial

Parmelee Sues Railroads For \$8.5 Million Damages

The Parmelee Transportation Company has filed an \$8.5 million damage suit against 21 railroads, the Western Passenger Association and three station companies.

Parmelee contends the railroads owe \$7 million for baggage handling in which passengers checked their baggage between Chicago stations but failed to use their transfer coupons for their own transportation.

The suit asks an additional \$1.5 million for "improper diversion of traffic"—claiming the rail carriers diverted business to other carriers in violation of the agreement with Parmelee.

The Parmelee agreement with the railroads at Chicago was terminated

officially September 30. On October 1, the station-to-station transfer service was taken over by the Railroad Transfer Service, headed by John L. Keeshin.

In another development last week, Federal Judge Walter J. LaBuy ruled that the Keeshin-operated transfer service has no right to transfer through passengers in Chicago, because it holds no city terminal vehicle licenses.

The judge denied a motion by the railroads for a temporary injunction restraining the city from enforcing an ordinance requiring such licenses. A spokesman for the city said he does not believe the city will take action against Railroad Transfer Service pending appeal.

Heineman Sells Interest in Monon

Ben W. Heineman and his associates recently sold their Monon stock holdings. The sale, at \$25 a share, involved about 73,000 shares of the Monon's class A common stock, approximately 20% of the outstanding portion of the issue.

Mr. Heineman, who is chairman of the executive committee of the Minneapolis & St. Louis, told *Railway Age* the stock had been purchased by the firms of Sutro Brothers and Gruss & Co. of New York, for their own accounts.

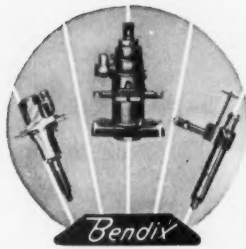
Chicago & North Western-Milwaukee.—Merger Report Next May.—It has been announced by both roads that C&NW-Milwaukee consolidation studies have progressed to such an extent that reports will be made to the roads' respective stockholders' meetings in May 1956.

Northern Pacific. Stock Split Proposed.—NP stockholders, at the annual meeting next April, will be asked to approve a two-for-one split in the road's common stock.

Western Maryland.—To Eliminate Preferred Arrearages.—WM directors have voted to eliminate the \$108.50-per-share dividend arrearages on the 7% cumulative first preferred stock by declaring the following dividends, all payable December 28 to stockholders of record December 23: \$7 a share for each of the years beginning July 1, 1940, when payments on the issue were suspended, to the 1955 year-end on June 30, and \$3.50 a share for the six months ending next December 31. (Continued on page 46)

A COAST TO COAST

AUTHORIZED



Service Organization

FUEL INJECTION EQUIPMENT!

ALASKA

Anchorage, Reeve Alaska Airotive, 2424 E. 5th Ave.

ARIZONA

Phoenix, Charlie C. Jones Battery & Elec., 300-322 West Jefferson St.

CALIFORNIA

Bakersfield, Automotive Diesel & Electric Co., 1017—30th Street

Los Angeles 21, Magneto Sales & Service Co., 751 Towne Avenue

Sacramento, Langner & Rifkin, 1116—15th Street

San Diego 1, Electric & Diesel Equipment Co., 1254 Kettner Blvd.

San Diego, Seacord Pump and Injector, 1337 India Street

San Francisco 3, Furrer & Uster, Inc., 225—7th St.

Wilmington, Diesel Control Corporation, 218 North Marine Ave.

COLORADO

Denver 3, Central Supply Co., 1171 Lincoln Street

FLORIDA

Jacksonville 1, Spencer Electric Co., Inc., 40 West Beaver Street

Miami 36, Florida Diesel Service Co., 1930 North Miami Ave.

GEORGIA

Atlanta 3, Auto Electric & Magneto Co., 477 Spring Street, N.W.

ILLINOIS

Chicago 16, Illinois Auto Electric Co., 2011-37 Indiana Avenue

Rock Island, Lohse Automotive Service, Inc., 430 17th Street

INDIANA

Indianapolis 4, Gulling Auto Electric, Inc., 450 North Capitol Ave.

IOWA

Des Moines 9, Electrical Service & Sales Co., 1313 Walnut Street

KENTUCKY

Louisville 4, Ellingsworth Auto Electric Co., 1003 East Broadway

LOUISIANA

Baton Rouge, Womack Bros. Diesel Service, 6983 Airline Highway

Bossier City, Vaughan Tractor & Auto Parts Co., 605 West Street

Mail Address: P.O. Box 661, Shreveport, La.

Morgan City, Landry's Diesel Injector Service, P.O. Box 246

New Orleans 21, Gerhard's Fuel Injection Service, 2501 Jefferson Highway

New Orleans 13, John M. Walton, Inc., 1050 Carondelet St.

MARYLAND

Baltimore 1, Parks & Hull Automotive Corp., 1033 Cathedral St.

MASSACHUSETTS

Newton Upper Falls, W. J. Connell Co., 210 Needham Street, Newton Industrial Center

MICHIGAN

Detroit 2, Knorr-Maynard, Inc., 5743 Woodward Ave.

MINNESOTA

Hibbing, Diesel Service Co., 1800 East Third Ave.

Minneapolis 6, Diesel Service Co., 2509 East Lake St.

Minneapolis 2, Reinhard Bros. Co., Inc., 11 South 9th Street

MISSISSIPPI

Jackson, Womack Bros. Diesel Service, 1321 S. Gallatin Street

MISSOURI

Kansas City 8, Electrical & Magneto Service, Inc., 2538 Grand Avenue

St. Louis 23, Diesel Fuel Injection Service Co., 9331 South Broadway

NEBRASKA

Omaha 2, Carl A. Anderson, Inc., 16th & Jones St.

NEW JERSEY

Newark 2, Tire Trading Co., 239 Halsey Street

NEW YORK

Brooklyn 32, A & D Diesel Service, Inc., 145 21st Street

Brooklyn 38, E. A. Wildermuth, Inc., 1102 Atlantic Avenue

Buffalo 9, Hettrich Electric Service, 1032 Ellicott St.

Troy, Ehrlich Electric Service, Inc., 200 Fourth St.

Uniondale, A & D Diesel Service of Hempstead, 811 Nassau Road

NORTH CAROLINA

Raleigh, Diesel Injection Sales & Service, Inc., 3015 Hillsboro Street

Raleigh, Diesel Injection Service, 200 Fourth Ave.

OHIO

Cleveland 14, Cleveland Ignition Co., 1301 Superior Ave., N.E.

OKLAHOMA

Tulsa 3, Magneto Ignition Co., 701 West Fifth St.

OREGON

Portland 14, Automotive Products, Inc., 1700 Southeast Grand Avenue

PENNSYLVANIA

Harrisburg, Penn Diesel Service Co., 100 Prince Street

Hazleton, Penn Diesel Service Co., No. Church at 27th St.

Philadelphia 32, J. W. Parkin, Jr., 2251 N. Broad Street

Pittsburgh 6, Automotive Ignition, 6358 Penn Avenue

TENNESSEE

Memphis 4, Automotive Electric Service Co., 982 Linden Avenue

TEXAS

Corpus Christi, Womack Bros., 2002 Leopard St.

Dallas, Beard & Stone Electric Company, 3909 Live Oak St.

El Paso, Reynolds Battery & Magneto, 801 Myrtle Avenue

Houston 1, Beard & Stone Electric Company, Milam at Polk St.

Houston 11, Magneto & Diesel Injector Service, 6931 Navigation Blvd.

Odessa, Electric Service & Supply, 1601 N. Grant St.

San Antonio 3, Womack Bros., 123 West Carolina

UTAH

Salt Lake City 2, Diesel Electric Service & Supply Co., 60 East 13th St., South

VIRGINIA

Norfolk, Diesel Injection Sales & Service, 808 Union Street

Richmond 20, Charles H. Woodward Electric Company, 709 West Broad St.

Salem, Diesel Injection Sales & Service, 814 8th Street

WASHINGTON

Seattle 1, Seattle Injector Co., 2706 Second Ave.

Spokane 2, Sunset Electric Co., North 703 Division St.

WISCONSIN

Milwaukee 2, Wisconsin Magneto Co., 918 North Broadway

Canada

ALBERTA

Calgary, Hutton's Ltd., 131—11th Ave., West

BRITISH COLUMBIA

Vancouver, Fred Holmes Fuel Injector Sales & Service, Ltd., 627 Bidwell Street

Vancouver 4, Magneto Sales & Service, Ltd., 126 Gore Ave.

NEW BRUNSWICK

Fredericton, Stairs Brothers, 493 Northumberland Street

NEWFOUNDLAND

St. John's, A. H. Murray & Co., Ltd.

QUEBEC

Montreal, International Electric Co., 1037 Bleury St.

ONTARIO

Toronto, Diesel Equipment Ltd., 139 Laird Drive, Leaside

SCINTILLA DIVISION

SIDNEY, NEW YORK

Export Sales and Service:

Bendix International Division

205 East 42nd Street, New York 17, N. Y.

**SCINTILLA
DIVISION**

Bendix
AVIATION CORPORATION



Westinghouse
Friction Draft Gear
Type NY-11-F
Certified A.A.R.

* Energy is
Absorbed
(Not Stored)

* Exclusive Combination . . .

High Absorption and Low Reaction!

The energy of today's railroading impacts is dissipated by *friction* within the Westinghouse Draft Gear.

High absorption is characteristic of this particular draft gear, in combination with low reaction. Shocks are absorbed without transmitting ex-

cessive forces to the car structure and lading. Damage claims are reduced to a minimum, your equipment is protected. Unnecessary and costly maintenance is avoided.

The Westinghouse design provides proven realistic protection . . . continuing efficiency . . . important economies.

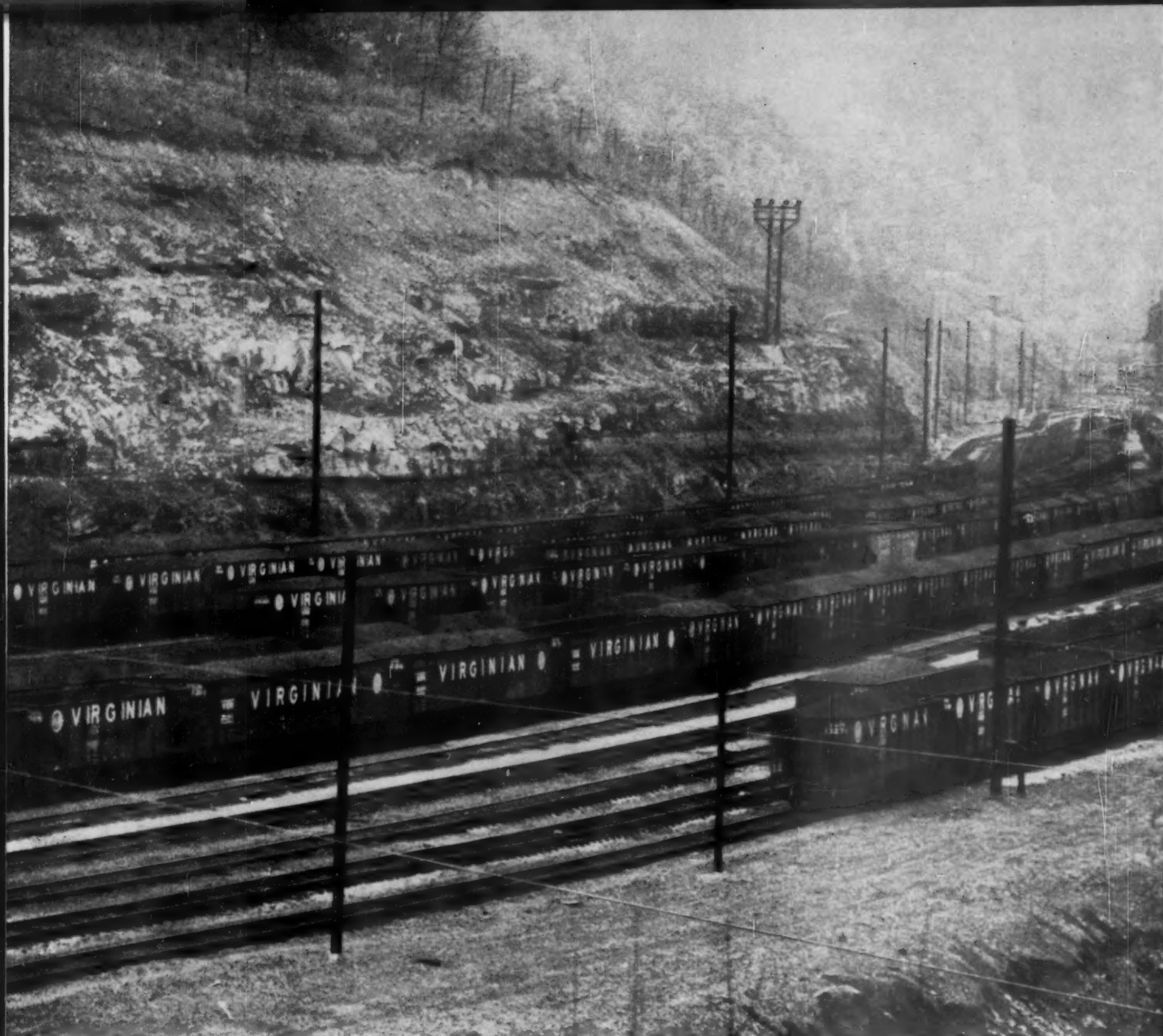


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332 S. Michigan Ave., Chicago 4, Illinois

Canadian Cardwell Co. Ltd., Montreal

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WESTINGHOUSE**



MORE TONNAGE EVERY MONTH...

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Fairbanks-Morse Train Masters.

Their power and versatility prove

TM

your soundest motive power buy



FAIRBANKS-MORSE

a name worth remembering when you want the best

Fairbanks, Morse & Co.,
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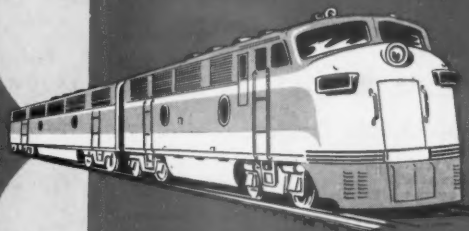
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For the railroad man with a serious professional concern in his work and future, *Railway Age* will be a most welcome and thoughtful gift. Throughout all of 1956, it will keep him up to the minute on all phases of this fascinating business of railroading. Why not enter a gift subscription to *Railway Age* for one of your railroad friends?



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watchman



that works
for nothing

Automatic Vapor Watchman Heaters actually *pay you* for the privilege of keeping idle Diesels safe, warm, fully expanded, always ready for the road.

Fuel savings alone (compared with idling) return your investment in two years or less...in every climate—*winter and summer*—wherever you operate.

Too, because Watchman Heaters hold Diesel coolant at operating temperature, cylinders don't shrink out-of-round, and formation of damaging sludge is

reduced. With *idling eliminated*, engines need less maintenance. And standby equipment requires no attendants for hours, days—even weeks!

These are some of the reasons why Vapor Watchman Heaters have quickly become *today's best investment* for all Diesel power units, whether now in use or on order.

Wire Vapor Chicago, collect, for the whole Watchman story. Just say "Number 51!"

VAPOR HEATING CORPORATION

80 E. Jackson Boulevard, Chicago 4, Illinois

NEW YORK • ST. PAUL • WASHINGTON • PHILADELPHIA • ATLANTA • SAN FRANCISCO • HOUSTON • RICHMOND • LOS ANGELES • ST. LOUIS

In Canada: Vapor Car Heating Co. of Canada, Ltd., 65 Dalhousie St., Montreal 3, Quebec
Vapor Export Corporation • Vapor International Corporation, Ltd. • Room 1400, Railway Exchange Bldg., Chicago 4, Illinois

it pays to keep Diesels ready-warm with the...



(Continued from page 40)

Authorization

CHICAGO, ROCK ISLAND & PACIFIC.—To assume liability for \$2,952,000 of equipment trust certificates to finance in part purchase of Togo-type passenger equipment, one diesel-electric unit, 225 hopper cars and 200 box cars at an estimated total cost of \$3,936,625 (*Railway Age*, October 17, page 16). The certificates, dated December 1, would mature in 24 semiannual installments of \$123,000 each beginning June 1, 1956. Division 4 approved sales of the securities at interest rates of 3% for 99.2099—the bid of Halsey Stuart & Co.—which will make the annual cost of the proceeds to the road approximately 3.15%. The securities were re-offered to the public.

Security Price Averages

	Dec. 13	Prev. Week	Last Year
Average price of 20 representative railway stocks	98.30	100.18	81.23
Average price of 20 representative railway bonds	97.74	97.63	97.41

Dividends Declared

ALLEGHENY & WESTERN.—guaranteed, \$3, semiannual, payable January 1, 1956, to holders of record December 20.

ATCHISON, TOPEKA & SANTA FE.—common, \$1.25, quarterly, payable March 1, 1956, to holders of record January 27; 5% preferred, \$1.25, quarterly, payable February 1, 1956, to holders of record December 30; extra, \$3, payable January 13, 1956, to holders of record December 16.

ATLANTA & WEST POINT.—year-end, \$2, payable December 22 to holders of record December 10.

BEECH CREEK.—50¢, quarterly, payable January 1, 1956, to holders of record December 15.

CANADA SOUTHERN.—\$1.50, semiannual, payable in U. S. funds February 1, 1956, to holders of record January 16.

CHICAGO, BURLINGTON & QUINCY.—year-end, \$2, payable December 23 to holders of record December 13.

CLEARFIELD & MAHONING.—\$1.50, semiannual, payable January 1, 1956, to holders of record December 20.

COLORADO & SOUTHERN.—common, \$1, year-end; \$4 second preferred, \$4, year-end; both payable December 29 to holders of record December 19.

EAST PENNSYLVANIA.—\$1.50, semiannual, payable January 17, 1956, to holders of record December 30.

LOUISVILLE, HENDERSON & ST. LOUIS.—5% preferred, \$2.50, semiannual, payable February 1, 1956, to holders of record February 1.

NEW YORK & HARLEM.—common, \$2.50, semiannual; 10% preferred, \$2.50, semiannual; both payable January 1, 1956, to holders of record December 15.

PHILADELPHIA & TRENTON.—\$2.50, quarterly, payable January 10, 1956, to holders of record December 30.

PITTSBURGH & LAKE ERIE.—\$1.50, quarterly, payable January 14, 1956, to holders of record December 16.

PITTSBURGH, FORT WAYNE & CHICAGO.—common, \$1.75, quarterly; 7% preferred, \$1.75, quarterly; both payable January 3, 1956, to holders of record December 9.

RICHMOND, FREDERICKSBURG & POTOMAC.—voting common, \$1, quarterly; extra, 50¢; dividend obligations, \$1, quarterly; extra, 50¢; 6% guaranteed, \$1.50, extra; 7% guaranteed, \$1.50, extra; all payable December 15 to holders of record December 5.

SEABOARD AIR LINE.—\$1.25, quarterly, payable December 27 to holders of record December 16.

TENNESSEE, ALABAMA & GEORGIA.—50¢, increase, payable December 23 to holders of record December 2.

WESTERN MARYLAND.—7% preferred, \$108.50, arrears, payable December 28 to holders of record December 23.

WISCONSIN CENTRAL.—\$2, resumed, payable January 10, 1956 to holders of record December 22.

WISCONSIN CENTRAL.—common, \$2, payable January 10, 1956, to holders of record December 22; initial payment since end of receivership in 1954.

Supply Trade

Timken Roller Bearing Company has announced that the \$5 million appropriated earlier this year to manufacture railway bearings will be spent at the Columbus plant. Work on the new railroad-bearing production unit will get under way immediately. On completion, about January 1957, it will have an annual capacity of 160,000 bearings.

Russell W. Boettiger, sales manager, **Leslie Company**, has been appointed director of sales.

Owens-Corning Fiberglas Corporation has named the **Box Car Equipment Company** as national distributor of Fiberglas infestation control blankets for railway box cars.

Directors of **General Steel Castings Corporation** have approved arrangements to acquire the **National Roll & Foundry Co.**, Avonmore, Pa., through exchange of stock. National Roll manufactures iron and iron alloy rolls for rolling mills in the steel and other industries. When the transaction is concluded it will be operated as a General Steel subsidiary.

Frank D. Jackson, a member of the sales staff of **Motor Wheel Corporation**, has been appointed sales manager, Pressed Steel division.

Cornell Dubilier Electric Corporation has moved its mid-west sales office to 5247 West Diversey avenue, Chicago.

H. K. Porter Company has acquired **Henry Disston & Sons, Inc.**, manufacturers of saws, files, bar and sheet steel, hand tools, machine knives and other allied products, in exchange for \$6 million of its new 4¼% preferred stock. Porter also has acquired



HARRY E. CONNORS (above), district sales manager, National Bearing Division of American Brake Shoe Company, at St. Paul, has been appointed general manager railroad sales, at Chicago.

the business of **Carlson & Sullivan, Inc.**, Monrovia, Cal., manufacturers of steel rules and measures. The latter will operate as part of the new Henry Disston Division.

OBITUARY

R. H. Boyer, supplier of railroad equipment, Philadelphia, died October 29.

Traffic

Build RR Leads, Then Sell Plant Sites, Fraser Urges

Industrial and community planners have been urged by M-K-T President Donald V. Fraser to develop manufacturing areas with railroad leads and other utilities installed even before individual sites are sold.

Mr. Fraser said the Katy's long experience with "communities of industries" stems from the location of 38 such manufacturing districts along its lines. Developments on **Katy lines** at Dallas "were the pioneering effort under this concept" and were the prototypes for industrial parks throughout the country, he told the Tulsa Chamber of Commerce December 9.

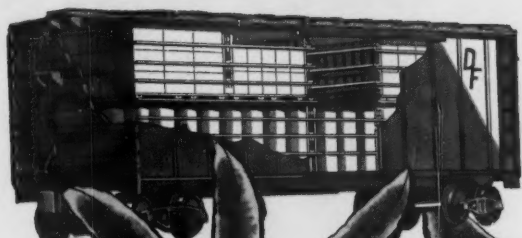
The Katy's role in industrial location, he went on, "has been manifold," frequently involving assistance in engineering the tracts, but most often "in developing leads to prospects and in publicizing the district in national industrial circles."

His road now is engaged in a program to attract new industry to the southwest by offering the services of location experts to the presidents of every firm in the United States employing more than 200 persons, through distribution of an informative brochure, he said.

Whitman Favors Appeals to ICC in State Abandonments

The Interstate Commerce Commission should be empowered to review appeals from state decisions in abandonment cases, F. B. Whitman, president of the Western Pacific, said at the December 6 meeting in Los Angeles of the Transportation Association of America. Appeals to the commission should be permitted, he said, if financial loss can be shown to result from continued operation of facilities a railroad wants to abandon.

Mr. Whitman also said the ICC's \$12 million budget appropriation is inadequate. He pointed out that the commission's personnel has been reduced since 1934 when it had a \$5 million budget, while the number of carriers it supervises has increased from 1,000 to 21,000.



The Kid Glove Treatment!

That's what both railroads and shippers call Evans DF* equipped cars. And with good reason . . . because box cars so equipped transport lading so well that damage in transit is virtually eliminated.

DF equipped cars provide a cost-and-time-saving service to shippers who need no longer pay for "deadhead" dunnage. They are designed to permit no slack . . . no damaging load-shifting . . . and full-car capacity loads are easily planned through multi-decking.

Heavier loads per DF car are now increasing revenue per car mile for forty-two Class I railroads.

DF cars are in constant demand as more shippers become aware of this "kid glove treatment" for their freight.

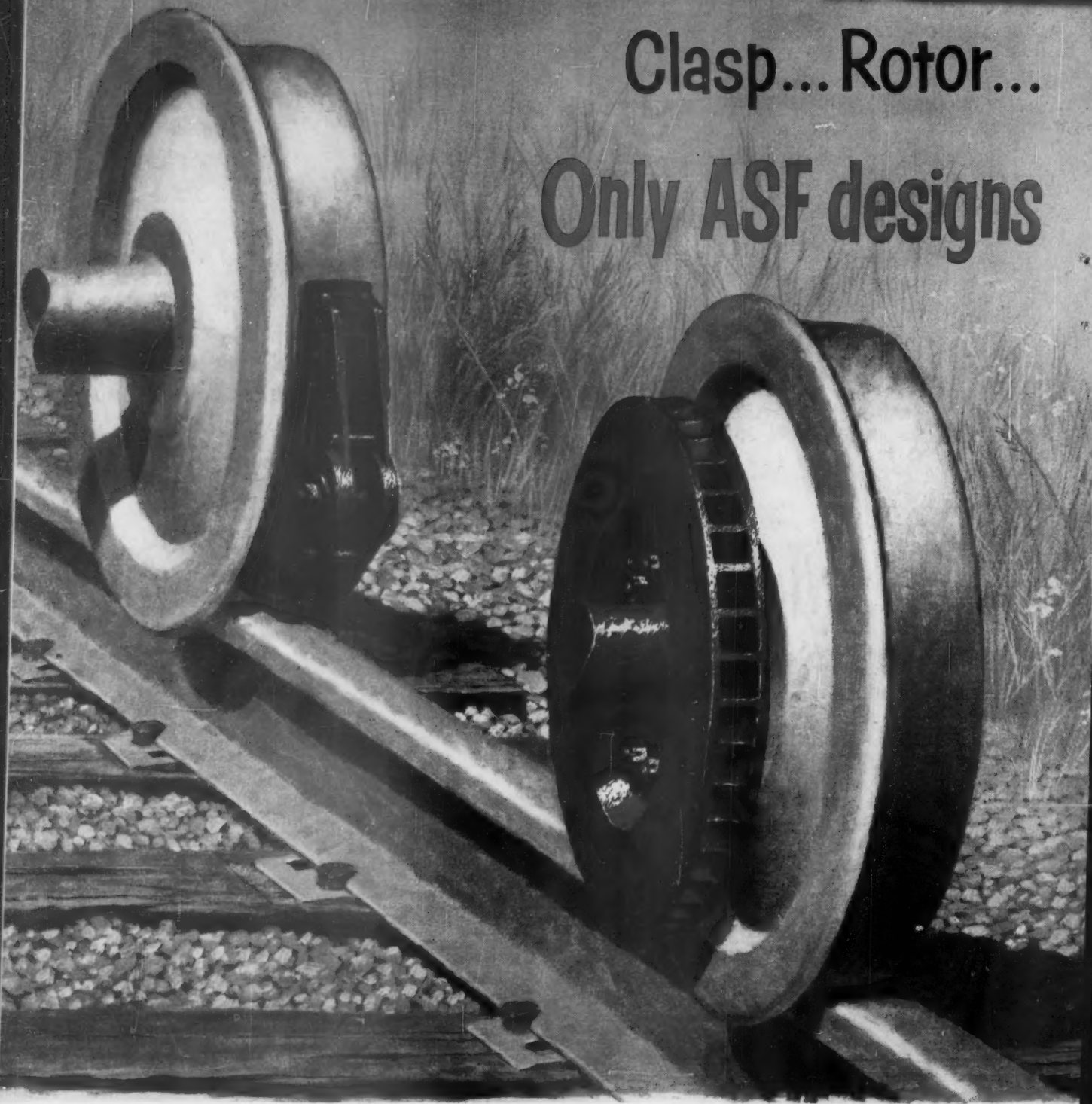
*DF, a trademark of Evans Products Company . . . only Evans makes it!



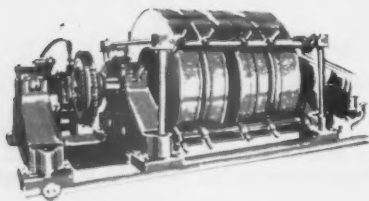
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DAMAGE AND DUNNAGE**

FREE BOOKLET! There's much more to the DF story of interest to both railroads and shippers. Write today for your copy of this interesting brochure to Evans Products Co., Dept. E-12, Plymouth, Mich.

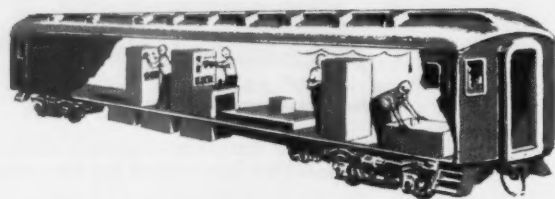
Clasp... Rotor... Only ASF designs



ONLY ASF IS EQUIPPED TO DEVELOP AND BUILD ALL THREE



ASF Brake Test Dynamometer permits close-range laboratory study of braking action . . . This unique machine can duplicate the stresses and kinetic energy of stops from 150 mph on down—service or emergency—as well as low or high speed drags.



ASF Brake Test Car furnishes final, on-line proof of brake design and brake performance . . . Over 1800 brakeway stops have been made to date with this ASF car—fitted at various times with ASF clasp, rotor and combination brakes.

or Combination and builds all three types of brakes

Railroad men may well ask why only one company—American Steel Foundries—is prepared to build any type of brake.

The answer is *experience*. Not just the experience of *building* brakes for 35 years, but the kind that comes from being the only company equipped to do a thorough, objective job of *brake development*. The Brake Dynamometer and the ASF Brake Test Car, shown on the opposite page, are typical of the specialized equipment it takes to do that job.

But it takes more than specialized equipment. It takes men with the skill to design such equipment, with the technical background to use it properly, with the experience to interpret research data in practical terms. There's no easy way to design and develop many different types of brakes; no substitute for testing each brake under conditions that are identical with on-line train operation.


Ask your ASF Representative to show you the results of these on-line tests. That's the sure way to find the type of brake with the characteristics *you* want. Only at ASF can you *choose* the brake that's right for your road.



AMERICAN STEEL FOUNDRIES

410 North Michigan Ave., Chicago 11, Ill.

Canadian Sales: International Equipment Co., Ltd., Montreal, Quebec

Look for the MINT  MARK of fine products



Developed by Research
Special ASF-built machinery brings on-line brake problems into the laboratory for close-range study.



Tested On-Line . . .
The completely equipped ASF Test Car serves as a "proving ground" for new developments in brakes.



Proved in Service . . .
Far more passenger cars are equipped with ASF-built brakes than with all other makes combined!

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1955

Name of Road	Average mileage operated during period	Operating Revenues			Total and Deprec.			Operating Expenses			Operating ratio 1955/1954	Net railway tax operating accruals 1955/1954	Net railway operating income 1955/1954
		Freight	Pass.	Total (thous. mils.)	1955	1954	Total	1955	1954	Total			
Algonquin & Youngstown.....	Oct. 171	\$504	.....	\$516	\$482	\$65	\$69	\$69	\$65	\$150	70.2	\$154	\$50
Algonquin & Youngstown.....	10 mos. 171	4,874	.....	4,975	4,169	697	664	664	629	1,338	70.2	813	\$50
Atchafalaya, Topeka & Santa Fe.....	Oct. 13,097	\$3,133	\$3,133	\$6,266	\$7,800	\$6,538	\$6,538	\$6,538	\$6,538	\$6,538	70.2	\$154	\$50
Atchafalaya, Topeka & Santa Fe.....	10 mos. 13,097	397,596	397,596	795,192	795,192	675,926	675,926	675,926	675,926	675,926	70.2	813	\$50
Atlantic & St. Andrews Bay.....	Oct. 82	325	1	326	338	43	27	3	3	25	44.0	186	70
Atlantic & St. Andrews Bay.....	10 mos. 82	3,341	9	3,350	3,348	361	246	17	271	246	45.2	1,871	609
Atlanta & West Point.....	Oct. 93	271	33	304	330	45	50	5	67	55	75.1	19	36
Atlanta & West Point.....	10 mos. 93	2,021	264	2,285	2,176	387	438	59	559	543	85.6	356	96
Western of Alabama.....	Oct. 133	314	30	344	372	64	49	13	71	61	87.3	194	35
Atlantic & Danville.....	Oct. 133	2,308	248	2,556	3,518	483	511	88	629	628	80.2	329	213
Atlantic & Danville.....	10 mos. 133	23,085	2,488	25,573	35,183	4,800	5,200	200	5,400	5,200	75.9	43	8
Atlantic & Danville.....	10 mos. 205	1,335	.....	1,335	1,313	269	294	4	118	120	82.0	326	84
Atlantic Coast Line.....	Oct. 5,288	10,512	920	11,432	11,438	2,443	2,088	129	2,505	2,429	91.6	1,638	1,059
Atlantic Coast Line.....	10 mos. 5,316	106,502	13,763	120,265	126,775	23,927	21,248	1,661	28,114	27,166	84.9	19,789	7,375
Charleston & Western Carolina.....	Oct. 343	408	.....	408	552	151	167	22	102	107	84.3	67	20
Charleston & Western Carolina.....	10 mos. 343	4,098	.....	4,098	5,517	1,511	1,041	104	1,059	1,031	82.0	934	390
Baltimore & Ohio.....	Oct. 6,180	317,223	15,547	332,770	332,770	5,418	4,840	678	72,529	63,054	79.7	72,377	39,918
Baltimore & Ohio.....	10 mos. 6,180	3,172,233	155,470	3,327,703	3,327,703	54,180	48,400	6,780	725,290	630,540	81.6	723,377	399,918
Staten Island Rapid Transit.....	Oct. 29	215	57	272	257	47	50	10	24	25	90.4	38	34
Staten Island Rapid Transit.....	10 mos. 29	1,916	562	2,478	2,338	450	481	67	246	262	94.8	132	388
Bangor & Aroostook.....	Oct. 602	801	26	827	865	519	200	16	285	249	94.8	63	232
Bangor & Aroostook.....	10 mos. 602	8,010	260	8,270	8,650	519	2,000	160	2,850	2,490	94.8	630	232
Bessemer & Lake Erie.....	Oct. 208	2,493	.....	2,493	2,493	1,985	1,985	17	1,032	1,015	81.6	1,015	705
Bessemer & Lake Erie.....	10 mos. 208	24,930	.....	24,930	24,930	19,850	19,850	170	10,320	10,150	81.6	10,150	7,050
Boston & Maine.....	Oct. 1,575	5,672	738	6,410	6,625	1,029	1,116	165	817	928	74.8	1,847	586
Boston & Maine.....	10 mos. 1,575	55,023	7,378	62,401	67,607	12,614	14,907	1,497	8,895	9,963	85.3	17,350	6,441
Cambria & Indiana.....	Oct. 35	1,947	.....	1,947	1,947	1,017	1,017	15	1,034	1,019	102.5	15	65
Cambria & Indiana.....	10 mos. 35	19,470	.....	19,470	19,470	10,170	10,170	150	10,340	10,190	102.5	150	650
Canadian Pacific Lines in Maine.....	Oct. 234	292	53	345	356	89	94	5	85	83	105.7	20	27
Canadian Pacific Lines in Maine.....	10 mos. 234	2,920	530	3,450	3,560	890	940	50	850	830	105.7	200	270
Canadian Pacific Lines in Maine.....	10 mos. 234	4,778	502	5,280	5,388	5,044	1,021	974	54	1,087	84.9	909	243
Canadian Pacific Lines in Vermont.....	Oct. 90	250	18	268	223	50	55	5	29	31	83.5	48	13
Canadian Pacific Lines in Vermont.....	10 mos. 90	2,500	180	2,680	2,230	500	550	50	290	310	83.5	480	130
Central of Georgia.....	Oct. 1,764	31,324	1,527	32,851	32,851	5,772	5,195	475	5,956	5,420	90.2	7,064	2,300
Central of Georgia.....	10 mos. 1,764	313,240	15,270	328,510	328,510	57,720	51,950	4,750	59,560	54,200	90.2	70,640	23,000
Central of New Jersey.....	Oct. 613	3,365	440	3,805	3,805	847	847	626	1,933	1,862	76.3	1,116	440
Central of New Jersey.....	10 mos. 613	39,770	4,563	44,333	44,333	8,466	6,670	6,670	19,333	18,620	76.3	10,367	4,526
Central Vermont.....	Oct. 422	833	41	874	845	217	188	22	87	122	76.2	126	43
Central Vermont.....	10 mos. 422	8,330	410	8,740	8,450	2,170	1,880	220	870	1,220	85.1	1,220	430
Chesapeake & Ohio.....	Oct. 5,106	33,692	617	34,309	34,309	4,432	3,538	390	5,358	4,294	80.1	13,427	6,816
Chesapeake & Ohio.....	10 mos. 5,112	336,920	6,170	343,090	343,090	44,320	35,380	3,940	53,580	42,940	80.1	53,580	20,816
Chicago & Eastern Illinois.....	Oct. 868	2,522	1,993	4,515	4,515	3,692	3,509	330	4,496	4,466	81.2	5,834	967
Chicago & Eastern Illinois.....	10 mos. 868	25,220	19,930	45,150	45,150	36,920	35,090	3,300	44,960	44,660	81.2	58,340	9,670
Chicago & Illinois Midland.....	Oct. 130	627	.....	627	627	34	67	7	131	140	63.3	240	141
Chicago & Illinois Midland.....	10 mos. 130	6,270	.....	6,270	6,270	340	670	70	1,310	1,400	63.3	2,400	1,410
Chicago & North Western.....	Oct. 7,816	15,079	1,626	16,705	16,705	2,483	2,415	324	2,847	2,810	84.9	4,126	1,098
Chicago & North Western.....	10 mos. 7,816	150,790	16,260	167,050	167,050	24,830	24,150	3,240	28,470	28,100	84.9	41,260	10,980
Chicago & Burlington & Quincy.....	Oct. 8,828	168,347	15,944	184,291	184,291	27,933	27,933	4,115	32,751	32,496	75.3	48,231	24,026
Chicago & Burlington & Quincy.....	10 mos. 8,828	1,683,470	159,440	1,842,910	1,842,910	279,330	279,330	41,150	327,510	324,960	75.3	482,310	240,260
Chicago Great Western.....	Oct. 1,470	2,927	5	2,932	2,932	406	406	46	465	396	86.8	1,096	428
Chicago Great Western.....	10 mos. 1,470	29,270	50	29,320	29,320	4,060	4,060	460	4,650	3,960	86.8	10,960	4,280
Chicago, Indianapolis & Louisville.....	Oct. 541	1,880	65	1,945	1,868	294	223	23	427	409	76.4	9,304	3,576
Chicago, Indianapolis & Louisville.....	10 mos. 541	18,800	650	19,450	18,680	2,940	2,230	230	4,270	4,090	76.4	93,040	35,760
Chic., Milw., St. Paul & Pacific.....	Oct. 10,641	20,133	1,040	21,173	21,173	2,961	2,961	366	3,366	3,366	85.1	34,016	15,556
Chic., Milw., St. Paul & Pacific.....	10 mos. 10,641	201,330	10,400	211,730	211,730	29,610	29,610	3,660	33,660	33,660	85.1	340,160	155,560
Chicago, Rock Island & Pacific.....	Oct. 7,920	13,162	1,260	14,422	14,422	2,481	2,408	252	2,518	2,478	75.7	3,867	1,418
Chicago, Rock Island & Pacific.....	10 mos. 7,920	131,620	12,600	144,220	144,220	24,810	24,080	2,520	25,180	24,780	75.7	38,670	14,180
Chicago, St. Paul, Minn. & Omaha.....	Oct. 1,616	2,982	1,476	4,458	4,458	4,353	4,353	437	3,895	3,913	86.2	4,251	1,762
Chicago, St. Paul, Minn. & Omaha.....	10 mos. 1,616	29,820	14,760	44,580	44,580	43,530	43,530	4,370	38,950	39,130	86.2	42,510	17,620
Clinchfield Railroad.....	Oct. 304	1,944	.....	1,944	1,944	1,098	1,098	19	350	274	59.6	790	204
Clinchfield Railroad.....	10 mos. 304	19,440	.....	19,440	19,440	10,980	10,980	190	3,500	2,740	59.6	7,900	2,040
Clinchfield Railroad.....	10 mos. 304	15,894	.....	15,894	15,894	17,073	2,780	204	2,924	3,004	62.3	6,406	1,835

REVENUES AND EXPENSES OF RAILWAYS

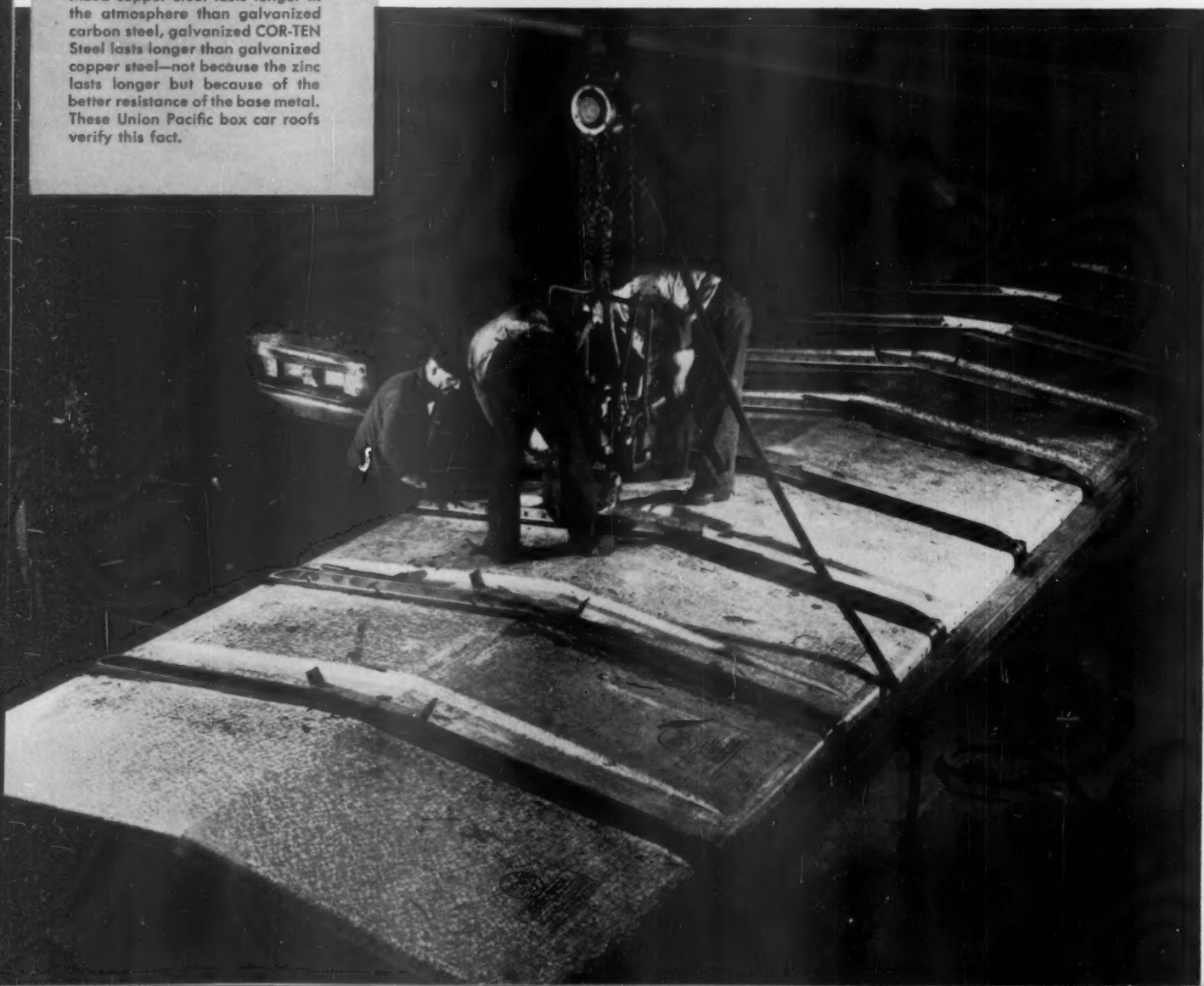
(Dollar figures are stated in thousands; i.e., with last three digits omitted)
MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1955

Name of Road	Average revenue earned during period	Operating Revenues			Operating Expenses			Total	Retire- ment	Total	Trans- portation	Total	Total	Operating ratio	Net income from railway operation	Net railway income from operation
		Pass.	Freight	Other	1955	1954	1955	1955	1954	1955	1955	1955	1955	1955	1955	1955
Colorado & Southern.....	719	1,145	60	1,345	1,379	490	181	15	161	251	41	31	525	1,011	1,271	1,594
Colorado & Southern.....	720	1,028	679	12,784	11,745	2,996	1,719	250	1,675	2,222	414	310	4,066	9,904	9,904	12,376
Ft. Worth & Denver.....	1,037	1,599	1,404	18,510	18,679	3,591	3,448	334	2,759	3,088	62	803	1,856	2,022	2,022	2,022
Colorado & Wyoming.....	40	210	....	331	279	40	27	98	302	273	111	14	1,073	1,865	1,477	1,594
Columbus & Greenville.....	168	160	1	170	181	30	40	4	13	23	6	5	59	125	140	150
Delaware & Hudson.....	798	1,457	143	5,144	4,996	630	881	67	290	552	56	144	1,356	1,356	1,356	1,356
Delaware & Hudson.....	792	4,087	1,573	44,049	40,398	5,299	6,238	508	7,314	7,823	1,788	866	14,824	30,499	32,282	32,282
Delaware, Lackawanna & Western.....	962	5,914	712	7,333	6,774	1,687	764	254	1,022	993	334	190	3,413	6,665	5,392	5,392
Denver & Rio Grande Western.....	2,165	7,853	258	7,400	6,940	586	639	84	970	985	275	206	2,241	4,302	4,302	4,302
Detroit & Mackinac.....	2,232	2,304	....	64,929	60,554	7,745	7,540	1,035	9,333	9,453	2,813	1,948	19,064	40,425	40,425	40,425
Detroit & Toledo Shore Line.....	50	623	....	3	1,845	1,650	373	400	28	293	255	94	405	1,239	1,173	1,173
Detroit, Toledo & Ironton.....	464	1,700	....	1,768	1,182	309	205	25	310	216	91	52	443	1,207	967	967
Duluth, Missabe & Iron Range.....	569	5,757	....	17,288	14,449	2,771	2,632	239	2,827	2,600	916	415	4,313	11,222	11,222	11,222
Duluth, South Shore & Atlantic.....	553	677	....	47,730	37,589	3,937	5,205	626	5,907	6,861	1,289	100	12,945	24,395	24,899	24,899
Duluth, Winnipeg & Pacific.....	175	507	....	515	466	75	77	4	60	66	2	6	211	359	343	343
Edgemoor, Joliet & Eastern.....	236	3,583	....	4,380	3,420	307	189	29	587	452	109	35	1,685	2,809	2,169	2,169
Eric.....	2,224	13,424	....	41,514	35,781	2,438	2,403	281	2,159	2,766	1,016	328	14,559	24,532	30,893	30,893
Florida East Coast.....	571	1,867	269	2,364	1,923	433	456	44	282	206	5,075	3,393	58,106	106,288	104,052	104,052
Georgia Railroad.....	321	678	....	4,516	28,075	26,038	3,827	4,423	442	4,960	5,005	987	759	10,161	21,196	22,226
Georgia & Florida.....	332	5,266	163	6,060	6,974	1,071	1,130	113	1,019	1,306	328	331	2,615	5,499	6,189	6,189
Grand Trunk Western.....	952	4,547	232	5,214	4,613	673	632	30	740	732	95	84	2,338	4,027	3,791	3,791
Can. Natl. Lines in New Engl.....	172	1,174	....	51,021	47,061	6,154	7,086	557	7,504	8,326	946	820	22,563	39,016	39,016	39,016
Great Northern.....	8,295	24,719	....	1,196	1,160	64	87	10	15	29	....	2	121	217	282	282
Green Bay & Western.....	224	358	....	366	336	93	99	4	40	51	9	24	103	278	295	295
Gulf, Mobile & Ohio.....	2,257	6,536	....	3,745	3,627	743	936	43	409	485	84	223	1,060	2,608	2,886	2,886
Illinois Central.....	6,531	21,954	....	3,329	69,541	60,489	10,391	10,251	820	1,156	286	278	2,179	5,197	4,970	4,970
Illinois Terminal.....	355	1,050	37	1,208	1,000	175	108	25	200	143	41	47	426	7,966	7,966	7,966
Kansas City Southern.....	891	33,291	1,040	37,549	34,353	3,749	3,425	426	4,595	3,811	935	911	10,788	21,970	19,070	19,070
Kansas, Oklahoma & Gulf.....	327	400	....	3,985	4,216	531	614	76	282	347	113	281	1,033	2,328	2,256	2,256
Lake Superior & Ishpeming.....	149	438	....	5,931	3,315	611	585	92	55	49	17	2	122	304	209	209
Lehigh & Hudson River.....	96	2,634	....	2,648	2,703	353	406	23	301	298	84	149	866	1,794	1,841	1,841
Lehigh & New England.....	178	672	....	6,314	5,590	774	806	85	1,647	1,408	397	175	1,995	4,993	4,626	4,626
Lehigh Valley.....	1,150	5,652	242	6,294	5,638	832	902	102	935	996	208	143	2,561	4,713	4,713	4,713
Long Island.....	353	1,157	3,880	5,273	4,952	778	666	116	1,017	982	144	130	2,585	4,079	4,079	4,079
	359	11,108	37,279	50,932	46,365	6,881	6,655	893	9,649	9,304	1,294	197	24,633	43,141	42,163	42,163

A Message to Management...

By reducing corrosion damage in freight cars

USS COR-TEN Steel's ability to prolong life and keep maintenance costs low is due primarily to its excellent resistance to atmospheric corrosion—4 to 6 times that of carbon steel, 2 to 3 times that of copper steel. And just as galvanized copper steel lasts longer in the atmosphere than galvanized carbon steel, galvanized COR-TEN Steel lasts longer than galvanized copper steel—not because the zinc lasts longer but because of the better resistance of the base metal. These Union Pacific box car roofs verify this fact.



USS COR-TEN Steel construction pays off BIG

UNION PACIFIC **cuts boxcar roof maintenance to a minimum** **with galvanized USS COR-TEN Steel**

5,700 box cars with roofs of galvanized USS COR-TEN Steel were put into service by Union Pacific in 1937, '38 and '40.

Last January, a representative group of these cars was inspected in Union Pacific's Omaha Shops. After 15 to 18 years' service the galvanized COR-TEN Steel roofs of 16 gauge steel, and some even of 18 gauge thickness, needed no repairs, and were "in excellent condition with no signs of failure due to corrosion." According to the shop superintendent, they expect these roofs to last the life of the cars, estimated at 25 years.

The mechanical and operating departments of Union Pacific — and top management in particular — have good reason to be pleased with the performance of USS COR-TEN Steel in this equipment. It is because of such proved ability to prolong life and keep maintenance costs low that Union Pacific has used USS COR-TEN Steel construction in a total of 17,580 box cars put into service since 1937.

To date more than 190,000 freight cars of all kinds have been built better with USS COR-TEN Steel. Many of these cars have been in service for twenty years. Most of them have been built on repeat orders after the original cars built had clearly shown that COR-TEN steel construction will reduce maintenance repair costs by better resisting corrosion and mechanical damage . . . will increase time between heavy major repairs . . . will last longer and require fewer shoppings, which mean less downtime and extra revenue.

Bear these facts in mind when you are looking for ways to reduce the steadily rising cost of car maintenance and operation.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

See "THE UNITED STATES STEEL HOUR"—Televised alternate weeks—Consult your newspaper for time and station.



U N I T E D S T A T E S S T E E L

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1955

Name of Road	Average mileage operated during period	Operating Revenues				Total				Operating Expenses				Operating ratio				Net from operation				Net railway operating income			
		Freight	Pass.	Other	Total	1955	1954	Retire-ments	Total	1955	1954	Retire-ments	Total	1955	1954	1955	1954	1955	1954	1955	1954	1955	1954	1955	1954
Pittsburgh & Shawmut.....	97	1,79	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	68	88	58	24	79	36	476	476	476	476
Pittsburgh & West Virginia.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Pittsburgh & West Virginia.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Reading.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Richmond, Fredericksburg & Potomac.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Rutland.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Sacramento Northern.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
St. Louis-San Francisco.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
St. Louis-San Francisco & Texas.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
St. Louis-Southwestern Lines.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Seaboard Air Line.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Southern Railway.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Alabama Great Southern.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Cinn., New Orleans & Texas Pacific.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Georgia Southern & Florida.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
New Orleans & Northeastern.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Southern Pacific.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Texas & New Orleans.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Spokane International.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Spokane, Portland & Seattle.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Tennessee Central.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Texas & Northern.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Texas & Pacific.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Texas Mexican.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Toledo, Peoria & Western.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Union Pacific.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Utah.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Virginian.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Wabash.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Ann Arbor.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Western Maryland.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Western Pacific.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135
Wisconsin Central.....	10 mos.	1,568	1,573	289	33	42	31	62	12	12	12	31	124	147	135	135	135	135	135	135	135	135	135	135	135



APRIL 29, 1887



NEW STATION UTILIZES ELECTRICAL DEVICES

NEW YORK, Apr. 29, 1887

The obvious criticism of the new Glen Ridge station is the placing of the agent at the end of the building farthest from the track, where he cannot have visual notice of approaching trains; done, evidently for the comfort and pleasure of waiting passengers, affording them an airy room, with a romantic prospect from the bay window overhanging the cut.

But with the simple and

inexpensive electrical devices now so common this objection is largely obviated. Electrical annunciators are a great convenience at any station, and should be provided even where the agent has a good outlook; and where he does not have it they are doubly necessary.

The engraving of the station gives the correct idea of its outlines but black and white lines are hardly adequate.

The romance of electricity and railroads started slowly—then grew in a rush. A single decade bridged the use of "simple and inexpensive" electrical devices to the introduction of major railroad power, lighting and control installations. And with each innovation Graybar was there—analyzing and helping to solve the electrical problems that are also railroad problems.

Sixty-five members of the Graybar sales staff specialize in railroad needs today. In communications, for instance, they'll be glad to work with you in the solution of any out-of-the-ordinary problem and furnish—without obligation—detailed installation recommendations, prices, specifications and such other data as you may require. And you can rely on the same experienced Graybar service in the fields of lighting, ventilation, power apparatus, control equipment and tools.

The address of your nearby Graybar Railroad representative is listed in your Railroad Pocket List. He'll be glad to oblige whenever you need assistance.

100,000 electrical items are distributed throughout the nation...

via
Graybar



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GRAYBAR ELECTRIC COMPANY, 420 LEXINGTON AVENUE, NEW YORK 17, N. Y.
OFFICES AND WAREHOUSES IN OVER 120 PRINCIPAL CITIES

Railway Officers

Jenks Succeeds Farrington As Rock Island President

Downing B. Jenks, executive vice-president of the Chicago, Rock Island & Pacific since June 1953, has been elected president effective January 1, 1956.

Mr. Jenks succeeds J. D. Farrington, who will become chairman of the board, a newly created post.

Mr. Farrington served as chief executive officer of the Rock Island from July 15, 1942, and became president in January 1948. He came to the road as chief operating officer in May 1936 after serving with the Burlington and the Great Northern. He entered railroad service in 1910, in the GN's engineering department.

Mr. Jenks, 40, entered railroad service with the GN after his graduation from Yale University in 1937. After service in World War II, he returned to the GN until October 1948, when he became general manager of the Chicago & Eastern Illinois. He later was elected vice-president of the C&EI, a post he held until he joined the Rock Island as assistant operating vice-president in December 1950.

John F. Nash Named President of P&LE

John F. Nash, vice-president of the Pittsburgh & Lake Erie at Pittsburgh, Pa., was named president of that road December 8.

BOSTON & MAINE.—Ralph G. Fritch, division superintendent at Dover, N.H., has been appointed manager of head-end passenger traffic, having charge of all matters relating to procurement and handling of baggage, mail, express, milk, newspapers, and other head-end passenger train traffic. Mr. Fritch will report to **P. J. Mullaney**, vice-president—traffic on matters pertaining to rates and procurement, and to **F. W. Rourke**, vice-president—operations on anything affecting operations. Mr. Fritch started his railroad service with the B&M in 1939 in the engineering department, later transferring to the operating department. In 1953 he was appointed superintendent, Portland division, at Dover, and recently was chairman of a Methods and Procedure Committee making studies of various activities on the road.

Edward P. Moore has been appointed foreign freight agent at New York. For the past 20 years Mr. Moore has been with the Waterman Steamship Company, New York, in both their foreign and domestic divisions.

ELGIN, JOLIET & EASTERN.—William R. Ware, Jr., assistant to superintendent car department, has been appointed assistant superintendent.



NEW HAVEN.—A. B. Virkler Legate, project manager, has been named also system manager of public relations at New Haven. Thomas M. Foristall & Associates of New York, will continue to handle the road's financial public relations activities.

ent motive power and equipment. Edwin Abraham, assistant to superintendent motive power and equipment at Joliet, has retired.

MONON.—Forest B. Morlan, office assistant to vice-president traffic at Chicago, has retired after 43 years of service. His successor is Leonard E. Eich, district freight agent at Chicago, who in turn has been replaced by Robert E. Martin. Adrian R. Voiss has been named general agent at Kansas City, Mo., succeeding John J. Duffy, retired.

NORTHERN PACIFIC.—Paul A. Walsh, general freight agent at St. Paul has been appointed general freight traffic manager in charge of rates, succeeding Roy E. Smith, who retired December 1 after 53 years of service. Mr. Walsh's successor is Irving C. Lawson, assistant to vice-president.

J. D. Worthing, office engineer at St. Paul, has been appointed assistant engineer of construction for a 19-mile track relocation project near Noxon, Mont. Mr. Worthing's successor is R. W. Humphreys, assistant engineer.

PULLMAN COMPANY.—Barton N. Lewis, acting chief purchasing and stores officer, has been appointed chief purchasing and stores officer.

READING.—L. C. Bosler, Jr., division freight agent at Philadelphia, has been appointed assistant general freight agent there, succeeding Thomas P. Refbord, retired. Mr. Bosler has been appointed also general freight agent of the Reading Transportation Company. E. W. Schaefer, traveling freight agent at Pittsburgh, has been appointed general agent at Trenton, N. J., succeeding George N. Ewing, retired.

SOUTHERN CLASSIFICATION COMMITTEE.—J. G. Kerr has been

named chairman and R. E. Boyle, Jr., has been appointed vice-chairman at Atlanta, Ga. Mr. Kerr has been chairman of the Southern Freight Association and Mr. Boyle has been acting chairman of the Southern Classification Committee and vice-chairman of the Southern Freight Association.

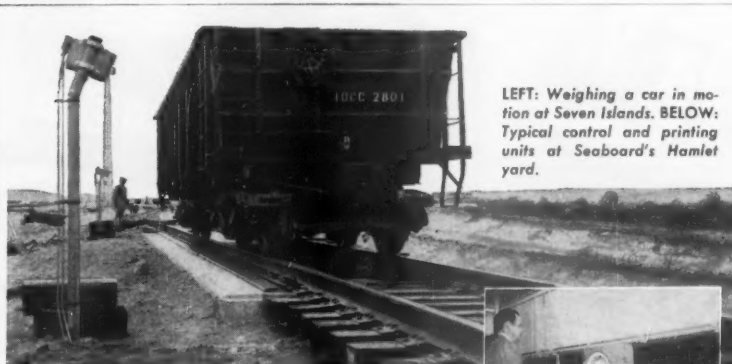
OBITUARY

D. W. Allan, 57, general agent for the Canadian Pacific at Boston,

Mass., died December 6 of heart attack.

William Nicholas Bichler, 74, manager of the former Cowlitz, Chehalis & Cascade at Chehalis, Wash., died December 5 at Seattle, Wash., while there on railroad business.

Rufus H. Flinn, 68, who retired a year ago as assistant to vice-president, Central region, Pennsylvania, at Pittsburgh, died December 8 in West Penn Hospital, after a brief illness.



LEFT: Weighing a car in motion at Seven Islands. BELOW: Typical control and printing units at Seaboard's Hamlet yard.

**Weighs 100 cars
in 20 minutes**

"on the fly"

All iron ore from the new Labrador fields—over 6 million tons in 1955—is weighed in motion by these Cox & Stevens electronic track scales. Installed by Iron Ore Company of Canada at Seven Islands, the scales automatically print-weigh a train of 100 cars in just 20 minutes!

After extensive experience, the Company reports: "Fast motion weighing . . . approximately twice as fast . . . accuracy equal to the best . . . maintained over longer periods . . . maintenance costs are low."

Many other modern railroad classification yards are now speeding all types of freight to destination . . . thus making available more cars . . . with accurate electronic motion weighing. The "Electro-Load" scales can be linked with machine tabulating, teletype or other automatic systems, saving time and paper work and preventing human error.

See what Cox & Stevens electronic track scales can do to reduce weighing costs, speed up delivery, and increase customer service.

COX & STEVENS ELECTRONIC SCALES DIV.

Revere CORPORATION OF AMERICA

WALLINGFORD, CONNECTICUT A Subsidiary of Neptune Meter Company



It Costs No More To Give More— If You Give The Bonus In Savings Bonds!

If your company is one of the more than 45,000 companies that have the Payroll Savings Plan you *know* what your employees think of Savings Bonds—they spell it out for you every month in their Savings Bond allotments.

If you don't have the Payroll Savings Plan, and are wondering whether your people would like to receive their bonus in Bonds, here are a few significant facts:

—every month, *before they get their pay checks or envelopes*—8,500,000 men and women enrolled in the Payroll Savings Plan invest \$160,000,000 in U. S. Savings Bonds.

—Payroll Savers hold their Bonds: From May 1, 1951, to September 30, 1955, approximately \$18.7 billion E Bonds reached 10-year maturity dates.

On September 30, 1955, approximately 70.3% of the matured bonds were retained by their owners under the automatic extension plan. With additional interest earned since maturity dates (\$560 million), cash value of the matured bonds held by individuals amounts to approximately \$13.7 billion.

—on September 30, 1955, the cash value of Series E and H Bonds—the kind sold only to individuals—totaled 39.7 billion dollars, a new high.

To the Payroll Saver, and to the man who buys his Bonds at a bank (because his company does not provide the Payroll Savings Plan) a One Hundred Dollar Savings Bond looks bigger and better and is bigger and better, than a check for \$75. *Make this a merrier Christmas for every employee. Give the gift that keeps on giving.*

The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

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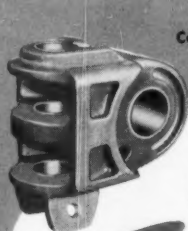
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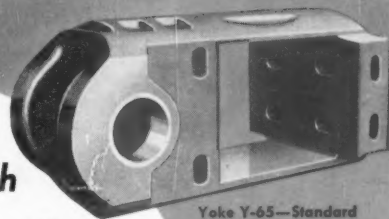
- ☐ The Victorian Railways comprise approximately 5,000 miles of route track, with a staff of 30,000, and utilizing steam, diesel and electric traction.
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- ☐ The closing date for applications is 29th February, 1956, and these should be addressed to the Minister of Transport, Railway Building, Spencer Street, Melbourne, Victoria, Australia.

ADVERTISERS IN THIS ISSUE

A		M	
American Brake Shoe Company, National Bearing Division	14, 15	Miner, Inc., W. H.	17
Agency—Fuller, Smith & Ross, Inc.	22	Mississippi Valley Equipment Co.	59
American Hair & Felt Company	22	N	
Agency—Oscar P. Holtzman, Advertising		National Tube Division, United States Steel Corporation	52, 53
American Steel & Wire Division, United States Steel Corporation	52, 53	Agency—Batten, Barton, Durstine, & Osborn, Inc.	
Agency—Batten, Barton, Durstine, & Osborn, Inc.		P	
American Steel Foundries	48, 49	Pacific Coast Borax Co.	23
Agency—Erwin, Wasey & Company, Ltd.		Agency—Howard M. Irwin & Associates	
B		R	
Batlas, Christie	59	Railway Educational Bureau, The	59
Bendix Aviation Corp., Scintilla Division	41	Revere Corporation of America	57
Agency—MacManus, John & Adams, Inc.		Agency—W. L. Towne Adv.	
Bethlehem Steel Company	1	S	
Agency—Jones & Brakeley, Inc.		Scharfenbergkupplung GMBH	44
C		Agency—Linder Presse Union GMBH	
Cardwell Westinghouse Company	42	Scintilla Division, Bendix Aviation Corp.	41
Agency—The Stuart Potter Company		Agency—MacManus, John & Adams, Inc.	
Chicago Railway Equipment Company	6	Standard Car Truck Company	18
Agency—W. S. Kirkland Advertising		Agency—The Stuart Potter Company	
Classified Advertisements	59	Standard Oil of Indiana	11
Columbia-Geneva Steel Division, United States Steel Corporation	52, 53	Agency—D'Arcy Advertising Co.	
Agency—Batten, Barton, Durstine, & Osborn, Inc.		Standard Railway Equipment Mfg. Company	24
D		Agency—W. S. Kirkland, Advertising	
Dearborn Chemical Company	19	Symington-Gould Corp., The	Inside Back Cover
Agency—The Buchen Company		Agency—Ed Wolff & Associates	
E		T	
Electro-Motive Division, General Motors Corporation	Front Cover	Tennessee Coal & Iron Division, United States Steel Corporation	52, 53
Agency—The Kudner Agency, Inc.		Agency—Batten, Barton, Durstine, & Osborn, Inc.	
Evans Products Company	47	U	
Agency—J. Walter Thompson Company		Union Switch & Signal Division of Westinghouse Air Brake Company	2
F		Agency—Batten, Barton, Durstine & Osborn, Inc.	
Fairbanks-Morse & Co.	43	United States Steel Corporation, United States Steel Supply Division	52, 53
Agency—The Buchen Company		Agency—Batten, Barton, Durstine, & Osborn, Inc.	
G		V	
Gates Engineering Co.	26	Vapor Heating Corporation	45
Agency—Gauge Associates		Agency—William Hart Adler, Inc.	
General Railway Signal Company	Back Cover	Victorian State Railways, Australia	59
Glidden Company, The	21	W	
Agency—Meldrum & Fewsmith, Inc.		Westinghouse Air Brake Company	4
Graybar Electric Co., Inc.	56	Agency—Batten, Barton, Durstine & Osborn, Inc.	
Agency—G. M. Basford Company			
H			
Hyman-Michaels Company	44		
I			
International Steel Company	Inside Front Cover		
Agency—W. S. Kirkland, Advertising			
Iron & Steel Products, Inc.	59		



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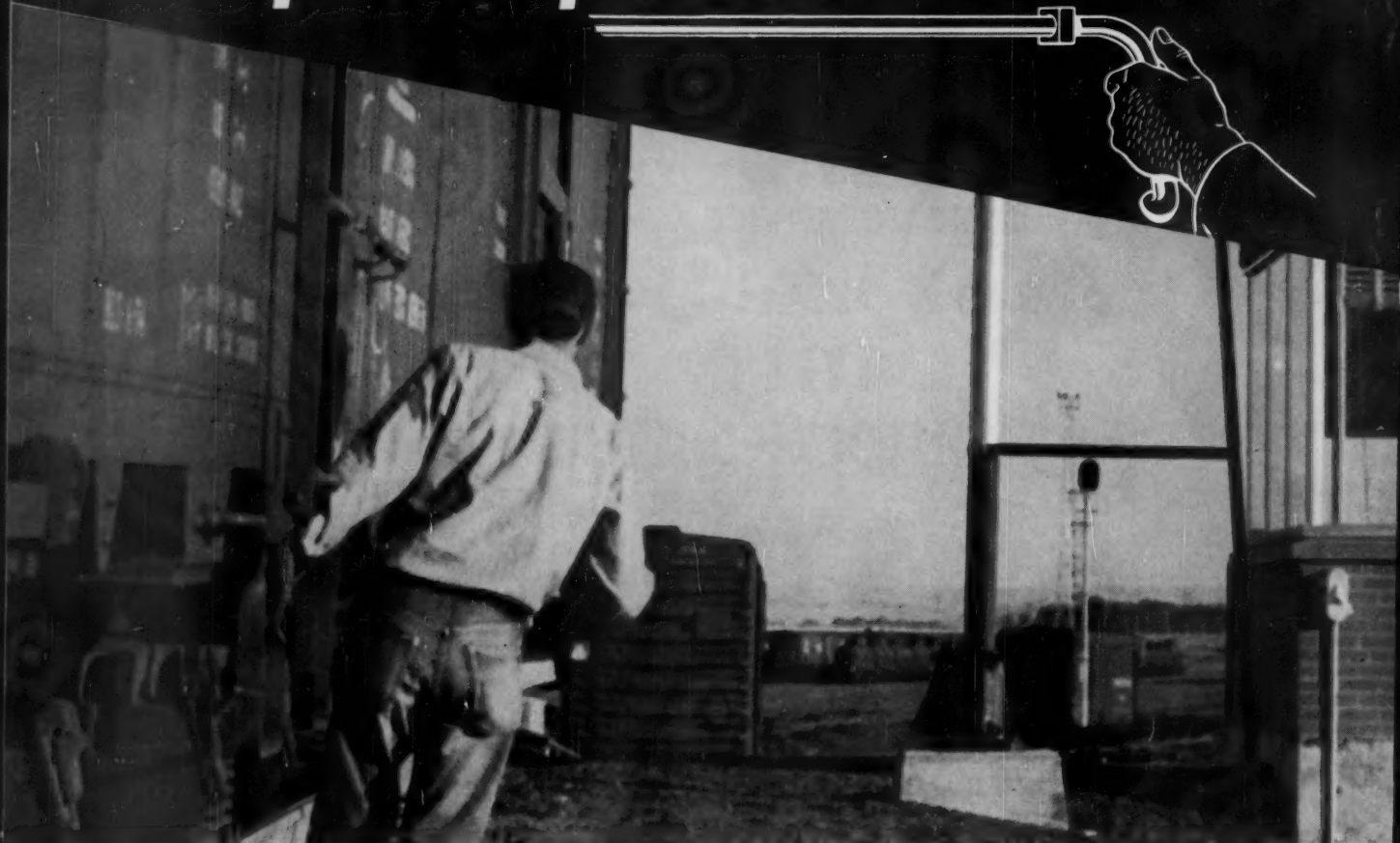
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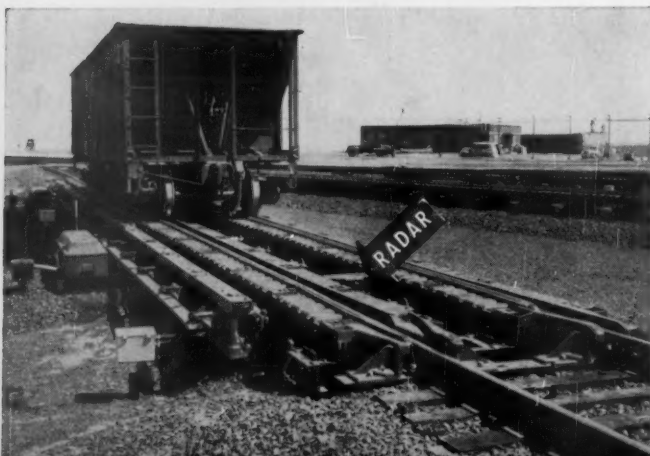


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